Kim Roger

ROCKY FLATS FUTURE SITE USE WORKING GROUP

FUTURE SITE USE RECOMMENDATIONS

Rocky Flats Local Impacts Initiative · Rocky Flats Environmental Technology Site · U.S. Department of Energy

1/42

ROCKY FLATS FUTURE SITE USE WORKING GROUP RECOMMENDATIONS for ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Prepared For:
Rocky Flats Local Impacts Initiative
United States Department of Energy, Rocky Flats Environmental Technology Site
Colorado Department of Public Health and Environment
Environmental Protection Agency

Produced By:
Rocky Flats Future Site Use Working Group
July, 1995

Consultants:
CDR Associates
Shapins Associates, Inc.
EG&G Rocky Flats
BRW, Inc.
BBC, Inc.
Balloffet & Associates

June 22, 1995

The Honorable Hazel O'Leary
Secretary of the Department of Energy
Department of Energy
Washington, DC

Dear Madam Secretary:

We are pleased to transmit the "Rocky Flats Future Site Use Working Group Report" to you and the Department of Energy. Our Working Group has deliberated together for one year to prepare this report, from our first organizational meeting on June 16, 1994 to our final meeting on June 8, 1995. On June 22, 1995 we formally adopted this report. As you will see, we represent a diverse group of affected stakeholders and we have worked extremely hard to understand and accommodate each other's concerns.

The future use of the Rocky Flats plant is critical to the Denver region's 2.1 million residents. We hope that this report will serve to ensure an environmentally safe and economically viable transition.

A summary of issues on which the Working Group has reached agreement include:

- a focus on health and safety
- a buffer zone which is predominately preserved and protected open space
- a focus on environmentally conscious cleanup technology in the core industrial area
- a "three phased" context for considering changes of use, based upon cleanup activities and removal of the existing plutonium
- a long-term recommendation that the Federal government clean up this site until it is truly clean, to background levels

The document represents the best thinking of a broad spectrum of our community. We wish to emphasize that we used consensus decision making throughout the process. Where the Working Group was not able to reach consensus, we noted the issue, presented an array of options and documented the specific interests and concerns of the various parties.

Thank you for your consideration of this Group's recommendations. It has been a pleasure to serve the needs of our own community as well as those of the Federal government. We appreciate your efforts to bring our community perspectives into your decision making.

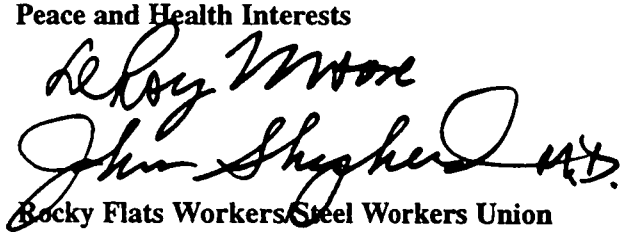
Sincerely yours,
The Rocky Flats Future Site Use Working Group

STAKEHOLDERS

Economic Interests

Environmental Interests

Peace and Health Interests



Rocky Flats Workers/Steel Workers Union

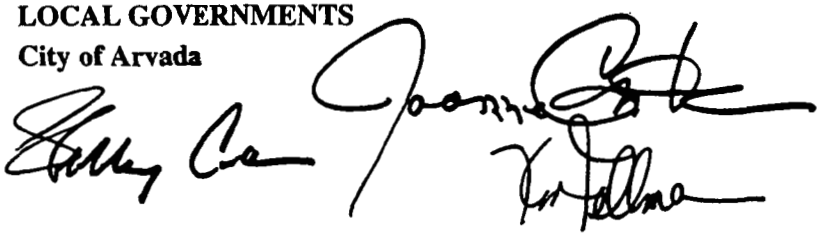
(Signatures pending review by legal council
and international representatives)

Rocky Flats' Neighboring Landowners/Homeowner Associations

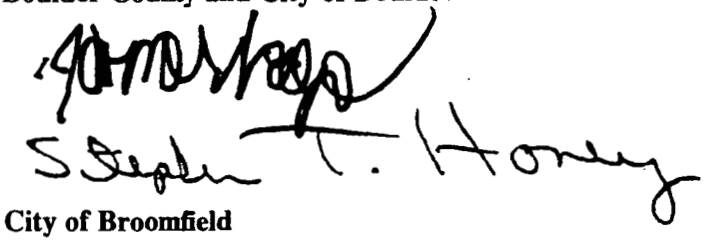
Major Adjacent Landowners

LOCAL GOVERNMENTS

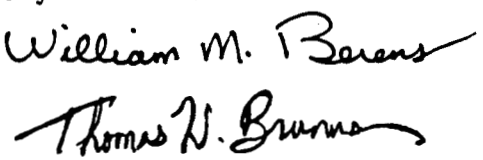
City of Arvada



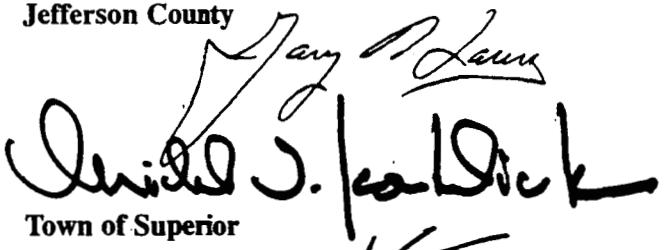
Boulder County and City of Boulder



City of Broomfield



Jefferson County



Town of Superior

City of Westminster

STAKEHOLDERS:

Stuart Asay, City of Westminster, Council Member

Luanne Auble, Economic Interests, Northwest Metro Chamber of Commerce

Bill Berens, City of Broomfield, Council Member

Mark Bosche, City of Superior, Board of Trustees

Tom Brunner, City of Broomfield, Council Member

Joanne Conte, City of Arvada, Council Member

Shelley Cook, City of Arvada, Council Member

Eugene DeMayo, Environmental Interests, Sierra Club

Don Dunshee, Economic Interests, Jefferson Economic Council

Ken Fellman, City of Arvada, Council Member

Jerry Harden, United Steelworkers' Union, President, Local 8031

Emily Holiday, Westminster Neighborhood Association

Tim Honey, City of Boulder, City Manager

Larry Hulse, City of Westminster, Director of Planning

Michael Kortendick, formerly: Jefferson County Planning Department; currently: AT&T Wireless Services

Gary Laura, Jefferson County, Commissioner

Charlie McKay, Major Adjacent Landowner, Church Ranch

LeRoy Moore, Peace and Health Interests, Rocky Mountain Peace Center

Richard Myers, Major Adjacent Landowner, Consultant Representative to Western Aggregates, Inc.

David Navarro, United Steelworkers' Union Rocky Flats

Homer Page, Boulder County, Commissioner

John Shepherd, Peace and Health Interests, Physicians for Social Responsibility, M.D.

Susan Spence, City of Superior, Board of Trustees

Chet Tchozewski, Environmental Interests

David Wilson, Peace and Health Interests, Rocky Mountain Peace Center (1/95 - 6/95)

Jean Woodis, Rocky Flats Neighboring Landowner, Arvada Citizen

TABLE OF CONTENTS

Background/Introduction

BACKGROUND

Document Purpose

The purpose of this document is to provide the Department of Energy (DOE) and other interested agencies and individuals with the recommendations developed by the Rocky Flats Future Site Use Working Group (Working Group) for future uses at Rocky Flats Environmental Technology Site (Rocky Flats).

Rocky Flats Site Use Working Group Formation and Purpose

The Rocky Flats Future Site Use Working Group, representing a broad spectrum of interests and stakeholders, was convened in April 1994. The group's goal was to provide direction and to make recommendations to DOE, Colorado Department of Public Health and the Environment (CDPHE), Environmental Protection Agency (EPA), and local decision makers regarding the future use of the Rocky Flats site.

The purpose of the Rocky Flats Future Site Use Working Group was to:

"Develop long-term future use options for the Rocky Flats site. The Department of Energy, Environmental Protection Agency, and Colorado Department of Public Health and the Environment will use the long-term future site uses as input into their cleanup decisions. The future use options are also available for use as input into planning and development decisions of local governments, economic development agencies, and surrounding landowners."

The Working Group was specifically charged with developing long term future uses for the Rocky Flats site. DOE will use this input when creating its vision plan for future uses and as a guide to decisions affecting or affected by facility or land uses. DOE, EPA, and CDPHE will use these site use recommendations as input into their cleanup decisions at the site. The future use options are also available for use as input into planning and development decisions by local governments, economic development agencies and surrounding land owners.

The Working Group was composed of 12 stakeholder categories, each with two co-delegates serving as representatives. The categories were: economic interests, environmental interests, peace and health interests, Rocky Flats workers/steel workers union, Rocky Flats neighboring landowners/homeowners associations, major adjacent landowners, Arvada, Boulder city and county, Broomfield, Jefferson County, Superior, Westminster. DOE, EPA, and CDPHE attended each meeting in order to provide input and to give professional advice concerning recommendations.

The Working Group met monthly starting in June 1994. Its process included understanding the spectrum of stakeholders' needs and concerns, gathering and understanding pertinent data, generating initial and final visions of future use options, and working toward consensus recommendations.

The public's input regarding interests, concerns and needs was essential to the success of this project. Multiple avenues were available for public participation. Working group participants were selected to represent a spectrum of interests. The co-delegates held meetings for their constituents and provided information to their constituents as the process developed. All Working Group meetings were open to the public. Finally, the Working Group and their constituents held a well attended public meeting to obtain input before generating the final recommendations.

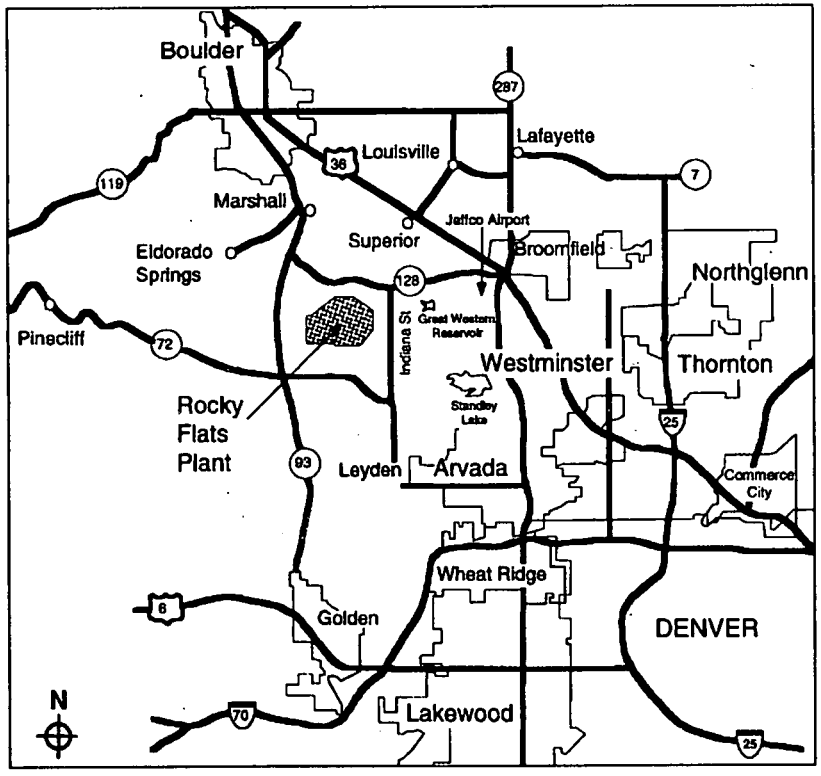
The Rocky Flats Citizen's Advisory Board (CAB) was created for citizens to specifically address cleanup at Rocky Flats. Since there is some overlap in discussion between the two boards, a Rocky Flats Citizen's Advisory Board staff representative attended each Working Group meeting. In addition, several members from the Rocky Flats Future Site Use Working Group are also on the CAB and helped brief both boards on decisions that were occurring between the two groups.

ROCKY FLATS LOCATION AND FUNCTION

Site Location and Surrounding Land Use

Rocky Flats is located along the front range of Colorado 16 miles northwest of downtown Denver in Jefferson County. The site is at the edge of the foothills of the Rocky Mountains near a large metropolitan area which is currently experiencing rapid growth and development. Approximately 2.1 million people live within a 50 mile radius of the site with current growth trends in the area projected at 30% within the next 20 years.

Rocky Flats directly adjoins the cities of Arvada, Westminster, Broomfield, Superior as well as Boulder County, and City of Boulder open space. Adjacent land use is a mixture of agriculture, preserved open space, mining industries, and low-density residential. In addition there



REGIONAL CONTEXT

are two municipal water supply storage reservoirs just downstream of Rocky Flats which provide drinking water to many front range communities. Future plans of adjacent cities show extensive potential development to the south and west primarily for industrial, office and limited residential uses as well as some mixed use development to the east and northeast.

Rocky Flats Site

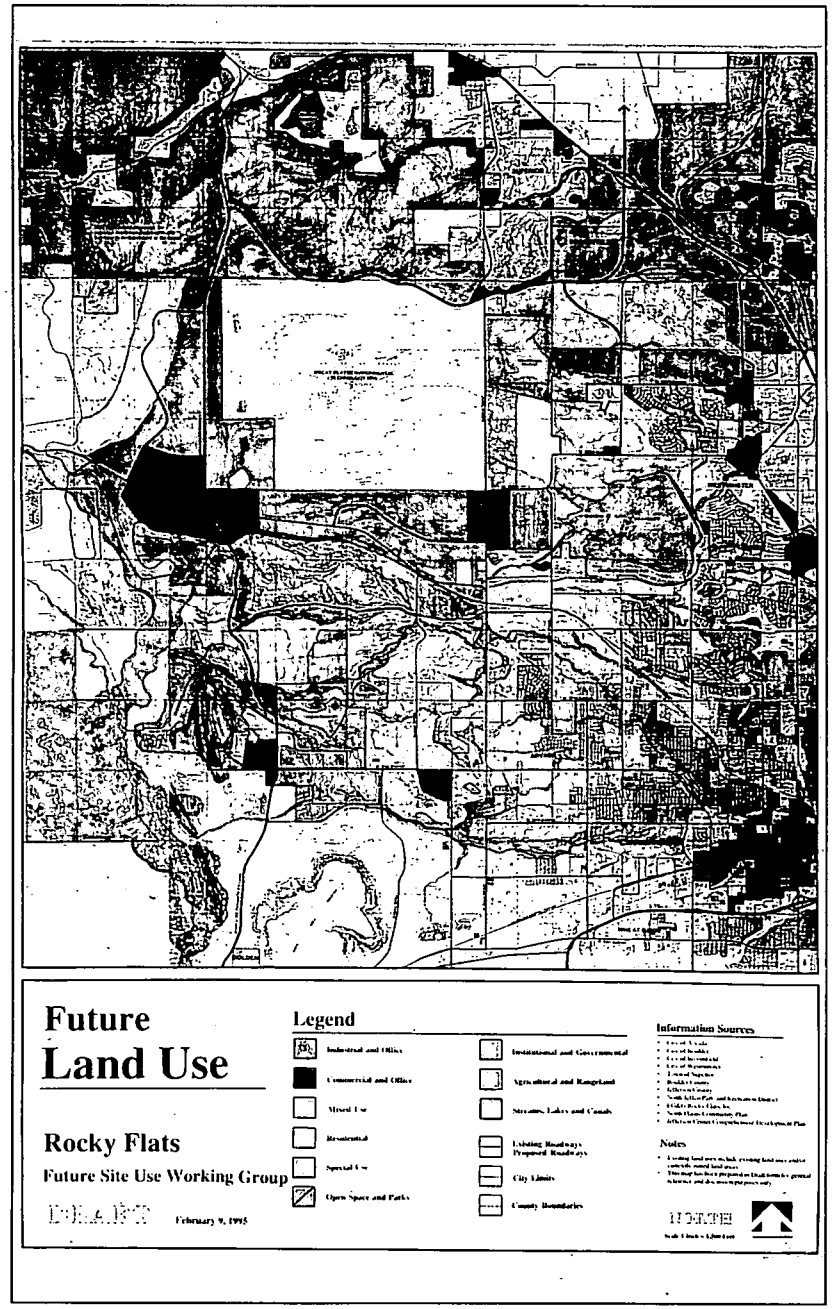
The Rocky Flats site is located at an elevation of approximately 6,000 feet on a geological bench called Rocky Flats. This bench flanks the eastern edge of the foothills, slopes down gradually to the east, and looks down over the Denver metropolitan area. The site is on approximately 6,500 acres. The primary facilities are in the industrial or core area of the site on 384 acres. This core area is in the center of the site and contains about 140 structures.

Approximately 6,100 acres are buffer lands and are preserved as open space with few facilities. This area serves as an environmental buffer zone to the core area to protect the site from potential surrounding encroachment, to maintain the physical security of the site, and to help protect public health and the environment off-site.

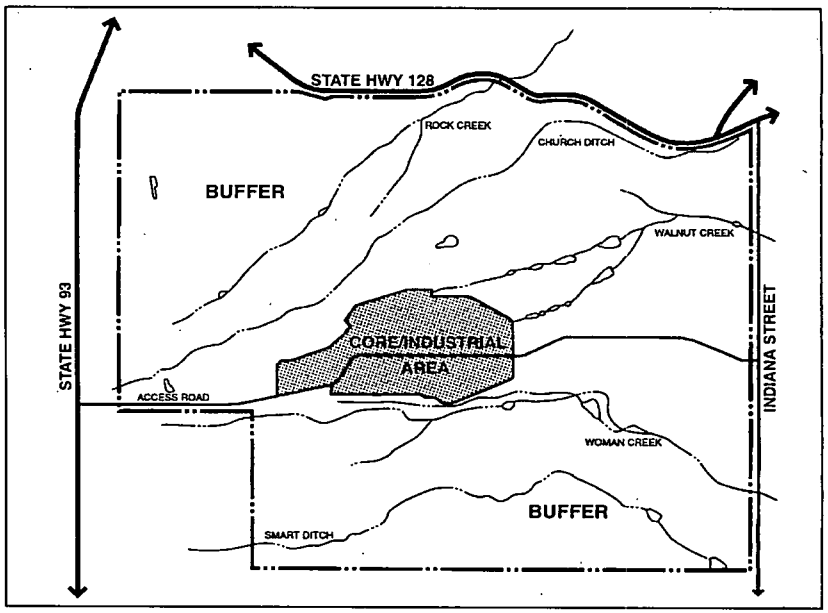
Rocky Flats Site Mission Then and Now

Rocky Flats is now owned by DOE and operated by a private contractor. In 1951, the United States Atomic Energy Commission, the early predecessor to DOE, announced plans to construct Rocky Flats. Construction began in 1952 and the first nuclear weapons components were completed and shipped off-site in 1953.

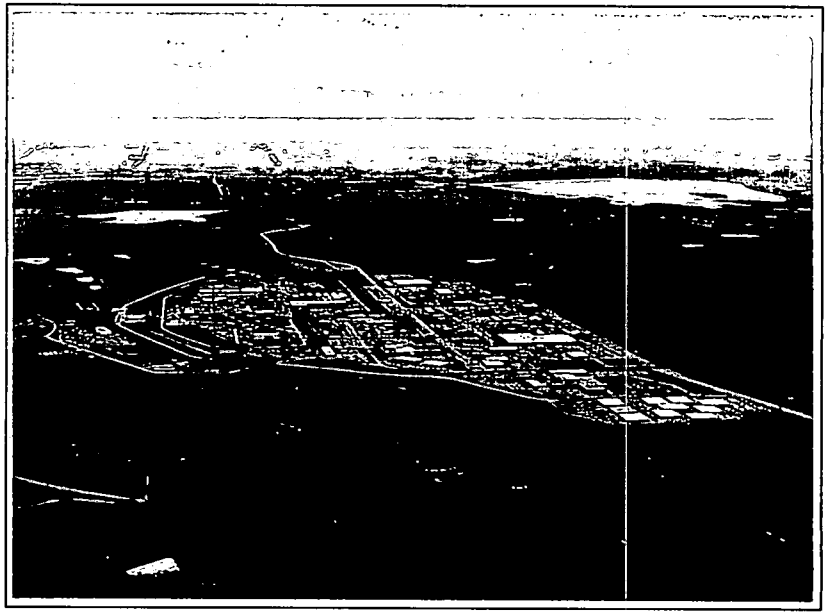
The primary mission of Rocky Flats was to produce components for nuclear weapons from materials such as plutonium, uranium, beryllium, and various alloys of stainless steel. Production was stopped in 1989 following a joint raid on Rocky Flats by the Federal Bureau of Investigations (FBI) and EPA. Up until 1989 plant operations and purposes were kept secret with little mission and management information given to the public. The site was off-limits to the general public. In 1992 the plant's production of nuclear weapon components was officially discontinued with the end of the Cold War.



FUTURE LAND USE MAP



ROCKY FLATS SITE



ROCKY FLATS

Rocky Flats now has a new mission focusing on environmental restoration, waste management, management of special nuclear materials on-site (one of which is plutonium), decontamination and decommissioning of facilities, and economic development. The site remains off-limits to the general public due to health and safety considerations, however, DOE now provides extensive information to the public concerning management and operations and works closely with the public on many issues related to Rocky Flats.

Radiation at the Rocky Flats Plant

Radioactive materials and radiation-producing equipment exist at Rocky Flats. Primary radioactive materials include plutonium, americium, uranium, and tritium. There are approximately 14.2 tons of plutonium which currently exist in different forms at the site. Many of these radioactive materials will continue to be handled at Rocky Flats as the plant proceeds with stabilization and consolidation of materials for safe on-site storage and eventual transfer off-site. These materials pose an on and off-site hazard as long as they are on the site. The most important potential contributor to radiation dose from these materials is alpha radiation emitted by plutonium, americium, and uranium.

The materials pose a potential internal radiation dose hazard, which means the radioactive material must be taken into the body for the alpha radiation to be harmful. For this reason, occupational and environmental protection at Rocky Flats focuses on pathways by which the materials could enter the body. EPA and CDPHE are the two primary agencies responsible for making sure the Rocky Flats site and surrounding contaminated areas are cleaned up to meet applicable federal laws with DOE responsible for implementing the cleanup activities. As of this writing (July, 1995), legally binding federal standards governing cleanup of radionuclides do not exist.

Two federal laws govern the majority of the cleanup activities at Rocky Flats: the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Pure radioactive waste and materials are regulated internally by DOE under the Atomic Energy Act. RCRA regulates all activities at the facility associated with hazardous waste and mixed waste. Mixed waste is waste that contains both radioactive and hazardous material. CERCLA requires cleanup at high priority contamination sites. Rocky Flats is listed as a Superfund site on the National Priorities list. A Superfund site is a federal designation given by EPA for sites severely contaminated from past activities. These sites must be cleaned up to levels established under law for the protection of human health and the environment. Rocky Flats contains numerous individual hazardous substance sites grouped into 16 areas called operable units. EPA is responsible for overseeing cleanup activities at Rocky Flats with DOE responsible for implementing the CERCLA requirements. EPA has responsibility for making sure RCRA requirements are followed and has delegated that authority for implementation to CDPHE. A 1991 cleanup agreement between DOE, EPA, and CDPHE is currently being renegotiated to correspond to the changed mission at Rocky Flats.

Future Site Use Working Group Process & Interests

FUTURE SITE USE WORKING GROUP PROCESS

The Working Group began meeting in June 1994 and deliberated for approximately one year to develop the recommendations reflected in this document. Development of a future site use vision occurred in four overlapping steps including identifying and understanding interests and needs, gathering necessary data, generating future use options, and building consensus and defining major views regarding future use recommendations.

When the working group was created, an important objective was to assure inclusion of all points of view. There was not an attempt to quantify the strength of various perspectives, only to make sure they were represented. For this reason, and because many Working Group participants represent autonomous entities whose prerogatives cannot be delegated, the ground rules of the Working Group were established as a consensus building process. This process was one of building agreement, rather than merely voting on already formulated alternatives. While straw votes were utilized to test the progress of consensus building, the recommendations in this report were formulated by the group as a whole as it deliberated and considered various interests. The consensus process was chosen as a way to best work toward reaching agreements that would meet the varied needs of the community - as reflected in the views of the working group members. It was not intended to be a mechanism for any participant to block the interests of others.

Step 1: Data Gathering and Interests/Needs

The group spent the first six months defining its mission and process, establishing ground rules for operation of the group, gaining knowledge of the site's assets and constraints, and understanding stakeholders' concerns and needs in regard to the future of the site. The Working Group identified the following data needs:

- Site land use suitability and physical characteristics.
- Surrounding and site land use patterns and issues (existing and proposed).
- Health and safety related to contamination and cleanup (i.e., nature and extent of contamination, waste storage on and off-site, on-site waste disposal, spheres-of-influence around contaminated areas, health effects, cleanup technologies, legislative framework, relationship between future site use and risk assessment and resultant cleanup levels).
- Market analysis and regional socio-economic information.

In addition, the group was taken on a tour of the site by a group of specialists so that specific questions could be answered and information could be explained. The tour included portions of the core and buffer areas.

The Working Group then developed a list of interests reflecting all the different stakeholders' needs. These interests established the basis for generating the future use options. The interests included the following major categories:

- Environment
- Safety and Health
- Economic Development
- Cleanup
- Process

The entire list of interests is shown under the Interest section below.

Step 2: Alternative Future Site Uses

Once the group had developed a working knowledge of the site and a set of interests, they began developing alternative future use scenarios that reflected the site constraints and stakeholder interests. The scenarios evolved and changed with each Working Group meeting and as the negotiations progressed.

The first set of scenarios was developed by each co-delegate group and reflected the future uses they would like to see assuming the site was remediated. Similarities existed between many of these first alternatives so they were combined into five different alternatives which reflected all the thoughts by the entire group. These alterna-

ROCKY FLATS FUTURE SITE USE WORKING GROUP

Rocky Flats Local Impacts Initiative - Rocky Flats Environmental Technology Site - U.S. Department of Energy

DATA GATHERING & INTERESTS & NEEDS

PROJECT START UP
MISSION DEFINED

ISSUES ANALYZED

- Socioeconomics
- Physical Characteristics
- Land Use Patterns
- Natural Resources
- Cultural Resources
- Contamination

ALTERNATIVE FUTURE SITE USE OPTIONS

STAKEHOLDER OPTIONS WITH REMEDIATION (5 Maps)

REFINED OPTIONS (4 Maps)

RECOMMENDATIONS & ALTERNATIVE REFINEMENTS

CONCEPT 1 | **CONCEPT 2**

RECOMMENDATIONS FOR EACH PLAN

TOPICS

- Health & Safety
- Natural Systems
- Cultural Resources
- Land Use
- Transportation
- Water Storage

Phase 1
- Plutonium inventoried
- Deactivation of production bldgs.
- Consolidation of Plutonium
- Initial cleanup of Buffer Area

Phase 2
- Plutonium containerized
- Plutonium & radioactive / hazardous waste removed
- Buffer zone remediation
- Building decontamination/ decommissioning

Phase 3
- Initial cleanup complete

FUTURE USE PLAN & RECOMMENDATIONS

tives continued to be refined and were reduced to four different alternatives. At this point contamination data was folded into the alternatives and more consolidation occurred. (Refer to Appendix C - Alternative Maps Before Reaching A Final Concept.)

Step 3: Recommendations, Future Use Refinements, Phasing

Further negotiation collapsed the four alternatives down to two concepts with written recommendations for each concept.

The concepts for the two alternatives were:

- Plan 1: Rocky Flats designated as a nationally significant site reserved for resource protection, research and education, and environmental technology.

- Plan 2: Rocky Flats incorporated into the surrounding region for a wide variety of uses and under numerous management jurisdictions.

Written recommendations were developed for each of the two alternatives considering three phases of cleanup. (For a more detailed description of cleanup phases refer to Appendix A - Future Timeline Assumptions)

- Phase I - Plutonium and radioactive and hazardous waste inventoried on-site: deactivation of production buildings; consolidation and stabilization of plutonium; initial cleanup of buffer area contamination in the soil and water.

- Phase II - Stored plutonium and backlogged radioactive and hazardous waste removed from site: decontamination and decommissioning of buildings; clean up of contamination in soil and water in buffer and industrial area continues.

- Phase III - Initial cleanup complete.

Each phase was considered as a set of activities which needs to occur before certain uses can happen rather than succinct time frames.

During this stage the group created an ultimate vision that the entire site should be restored to average Colorado background levels of contamination, recognizing this was a long term goal.

Step 4: Plan and Recommendations

The working group continued to build consensus recommendations and was able to synthesize the two alternatives in Step 3 into one plan. The recommendations were concentrated around the three phases as listed above. Each recommendation has the consent of all participants, although the strength of support may differ among participants. In addition, four issues were presented where consensus was not reached and at least one participant felt so strongly in opposition to the views of others that a common agreement was not achieved. Each side considered the issue to be important enough to report the content of the analysis and discussion, including support and concerns.

INTERESTS

During the first steps of the process the Working Group developed a long list of interests and then consolidated and categorized those interests to clearly define those that were most important to them. The interests below were used by the Working Group to guide the generation and evaluation of future options.

Environment

- Need to preserve valuable natural ecosystems with priority interest placed on preserving:
  - native plant and animal habitats;
  - threatened and endangered species;
  - water quality;
  - rare, undisturbed areas (e.g., tall prairie grasses).

- Efforts to preserve valuable natural ecosystems include:
  - managing growth and urban sprawl;
  - considering the impact of the development of Rocky Flats on adjacent open space properties;
  - recognizing and honoring prior greenbelt agreements.

Health and Safety

- Need to protect the human health and safety of everyone in the current population and for future generations.
- Efforts to protect human health and safety include:
  - having a clear understanding of health risks;
  - understanding what is an acceptable level of exposure to radiation and other hazardous substances;
  - keeping contaminated areas from being developed where health risks exist;
  - protecting the water supplies, including securing clear information about off-site reservoir feasibility and keeping contamination on-site;
  - maintaining a protective buffer;
  - employing harmless methods for cleaning, storing and disposing of waste.

Economic Development

- Need to maintain and cultivate Rocky Flats' positive impact on the economic health of the metro area.
- Efforts to maintain and cultivate economic health include:
  - providing viable transportation links;
  - providing a diversification of tax and economic bases in adjacent communities;
  - respecting existing property rights;
  - replacing lost jobs and, more specifically, generating jobs for cleanup, waste storage, and plutonium management;
  - promoting sustainable economic development.

Cleanup

- Need to look beyond the legal requirements for cleanup and instead ask the question "how clean should it be?"
- Efforts for cleanup include:
  - securing money for cleanup for as long a period as needed (considering an expanded time line);
  - providing complete, detailed information about types of contamination, the technology and cost of cleanup.

Site Use Working Group Process

- The following principles should guide the process:
  - need to balance between economic development and ecological interests;
  - need stakeholder/constituent input and communication throughout the cleanup process;
  - need honest communication based on best information from DOE and a clear understanding of how the group's product will be used;
  - need a defensible working group document;
  - need balanced perspectives in the decision making process;
  - need to coordinate this effort with the Denver Regional Council of Governments Metro Vision Project and other pertinent planning processes;
  - need future uses to inform CERCLA's risk assessment and feasibility studies, in order to answer the question, "how clean is clean?" (CERCLA requires an appropriate consideration of contamination, though with less focus on contamination at the beginning of the analysis.);
  - need both preferred options and an array of options, identified to inform DOE processes (NEPA), to ensure that if one option is not achievable, another can be chosen.

Recommendations

RECOMMENDATIONS

Introduction

This document represents the future use recommendations put forth by the Rocky Flats Future Site Use Working Group. The themes and principles listed below highlight the major agreements reached by the Working Group.

- Protect health and safety of the public and workers.
- Clean up to average background level for Colorado, through research, technology, and use of skilled work force.
- Retain current buffer area primarily as managed open space.
- Retain core as industrial area for cleanup and environmental technology.
- Future uses should occur in the context of three phases of cleanup.
- Protect or acquire property rights - including surface minerals, gas and oil easements, and water right.

Phases

The recommendations have been divided into three phases based on the cleanup activities occurring and the existence of radioactive and other waste materials still on-site. The three phases can be summarized as follows:

- Phase I - Plutonium and radioactive and hazardous waste inventoried on-site: deactivation of production buildings; consolidation and stabilization of plutonium; initial cleanup of buffer area contamination in the soil and water.

- Phase II - Stored plutonium and backlogged radioactive and hazardous waste removed from site: decontamination and decommissioning of buildings; clean up of contamination in soil and water in buffer and industrial area continues.

- Phase III - Initial cleanup complete.

(See Appendix A for more detailed descriptions of the phases and approximate time frames.)

GENERAL RECOMMENDATIONS

Areas Impacted By Stored Plutonium, Contamination, And Cleanup And Waste Management Activities

The Working Group agrees on the principle that any changes in use and/or additional public access to the Rocky Flats site should be allowed only in areas not impacted by stored plutonium and other waste, contamination, decommissioning, decontamination and other cleanup activities.

DOE and regulating agencies have not identified the amount of protected buffer area needed to ensure public health and safety around plutonium and other waste storage, contamination, and cleanup activities.[1] The Working Group recommends that DOE and regulatory agencies immediately begin to conduct state-of-the-art scientific analyses, utilizing risk assessment and risk management techniques, that will determine the boundaries of these protective areas (referred to in this document as the Health and Safety Protection Areas.)[2]

Cleanup Funding

Within all the phases of cleanup, the federal government should provide sufficient funds for research, technology development, and site monitoring related to cleanup, environmental preservation and rehabilitation, and other programs related to public health and safety related to Rocky Flats. These activities should continue throughout each phase of cleanup for the entire Rocky Flats site. A reliable funding mechanism, such as an earmarked, secure trust fund, should be established. (Fines and cost savings are potential partial funding sources.)

DOE Responsibility And Future Management

The federal government and DOE must have moral responsibility and legal liability for the remediation of the contamination both on and off-site. This responsibility and liability must be insured beyond current Federal legislation. In addition, full disclosure must be made to future users and owners of the land about the land's former use as a nuclear

production facility, so that they may assess risks. These principles should not alter any uses recommended in this document, including but not limited to the granting of leases and licenses.

1 This report discusses two types of protection or "buffer" zones. There is currently a buffer zone between the industrial area and surrounding communities. In addition, there will be specific, activity-dependent and time-dependent protective areas around sites as they are being cleaned up.

2 Within the Working Group there are currently differing perspectives as to how much buffer area is necessary to protect human health and safety within each of the phases. Some Working Group members assert that, at a minimum, the existing buffer zone at Rocky Flats should be retained to protect the public from cleanup activities and dangerous material storage and processing. Some Group members also assert that, if necessary, increasing the size of the buffer zone should be considered. Other Working Group members believe that current data is sufficient and indicates that human health and safety would not be at risk with the changes of uses proposed in Phase I along the edges of the buffer zone.

PHASE I RECOMMENDATIONS: PLUTONIUM IS STORED ON SITE

SUMMARY

Cleanup in the industrial area and buffer zone is the primary emphasis in Phase I. The current buffer zone should be designated open space until Health and Safety Protection Areas are determined. The current buffer zone should be preserved and managed as open space, with the exceptions detailed in this report. Open space will be dedicated to both preserving critical habitat and providing a protective area around the stored plutonium, waste and cleanup activities. The areas impacted by contamination or cleanup activities in the industrial area and buffer zone should continue to be tightly secured while cleanup activities occur.

Environmental management activities should be an important part of this phase in order to achieve substantial cleanup during Phase I. Along with any cleanup necessary to ensure health and safety on and off-site, the development of environmental technology related to cleanup should be strongly emphasized. Cleanup should be linked to resource preservation in order to remove the contamination while not significantly damaging natural resources. Environmental management and resource preservation may take preference over cleanup of materials not considered immediately dangerous to human health and safety. Therefore, final cleanup of certain areas may not be completed until technology is available to clean up the contamination without significantly impacting the natural environment.

HEALTH AND SAFETY - INDUSTRIAL AND BUFFER AREAS

Cleanup Levels: The federal government must be committed to the development and use of technology that will allow cleanup of Rocky Flats in a manner that respects the community's need for rapid, cost-effective and environmentally conscious cleanup methods, while still preserving environmental quality. We are willing to wait as long as is necessary, but no longer than necessary, to see the site cleaned up, even if that takes many generations to accomplish. When the tech-

nology allows cleanup to average background levels for Colorado in a cost-effective and environmentally sensitive manner, then cleanup should be done to this level.

We understand that current laws do not require this level of cleanup and currently this level of cleanup would be prohibitively expensive. However, we are committed to the ultimate decontamination of Rocky Flats and anticipate that technology will continue to improve, and that the site may be able to be cleaned up to background levels at some time in the future. This recommendation is made with an understanding that cleanup cannot move faster than cost-effective technology allows.

Cleanup in Relation to Natural Resources: Cleanup actions will take into consideration the prevention of injury to, destruction or loss of, or threat to natural resources as a result of a release of a contaminant. During this phase, the protection of human health and safety will be the first priority. Secondly, cleanup in this phase will focus on abating, preventing, minimizing, stabilizing, mitigating or eliminating the release or threat of release of a contaminant. All efforts will be made, as practical, to ensure that natural resources are not injured by the release of any contaminant.

Public Access: General, non-employee, public access will be restricted in all areas. This should not include government contractor or private sector workers involved in deactivation or cleanup or other authorized activities.

Cleanup Technology/Monitoring: The federal government should continue to fund and provide research which helps develop technologies that allow Rocky Flats to be cleaned up in a manner that respects the community's need for rapid, cost-effective and environmentally conscious cleanup while still preserving environmental quality.

Safe Transport: Working with the State of Colorado and affected local governments, and with a sense of urgency, DOE should review the public safety implications of the transport of all kinds of waste (including special nuclear materials) both on and off-site. Based upon the results of this study, DOE should update its safe transport policies and procedures; fund, if needed, applicable roadway or rail improvements; and provide assistance in upgrading emergency response capability.

FUTURE USES - INDUSTRIAL AREA

Cleanup: The primary emphasis in the industrial area will be on categorizing, containing and cleaning up, using both public and publicly regulated private resources, for health and safety purposes. New construction should be allowed only for activities that are related to cleanup, research, and management, and only if an existing structure cannot be reused.

Environmental Technology: Areas in the industrial area not impacted by contamination and cleanup activities may be considered for adjunct environmental technology activities, i.e., for use by DOE contractors or sub-contractors engaging in DOE Rocky Flats activities who wish to pursue similar or related work that is not intended for use at Rocky Flats. Existing structures should be reused or adapted for reuse. Such activities should not contribute waste to, nor interfere with ongoing cleanup. (See discussion of Noncleanup Related Uses of Industrial Area, under Issues Without Full Consensus, page 22.)

Mineral Extraction: No surface access to the industrial area will be allowed for sand and gravel mining, oil and gas exploration, or other mineral extraction.

Core Industrial Area Roads: The transportation infrastructure needed to serve on-site uses should be retained as necessary to serve the industrial development area.

FUTURE USES - BUFFER AREA

Cleanup: Environmental restoration of soil and water outside the industrial area should occur so contaminants do not pose a threat to human health and the environment. Cleanup should stabilize materials and ensure public health and safety, but beyond this point, cleanup should be carefully studied to determine the potential disturbance to

natural resources in the buffer area. Once contaminants are contained appropriately to ensure human health and safety, then cleanup should be focused on methods which minimize disturbance to the natural environment.

National Renewable Energy Laboratory Wind Site: Although future uses on the current wind site are not officially within the jurisdiction of this Group, the Group endorses current wind technology and other renewable energy uses of the site. Current uses may be increased within the current boundary of the site.

Mineral Extraction Rights Acquisition: Reserved property rights (e.g., surface-mineral, sand, gravel, clay, oil, gas, water) not permitted by state and local land use agencies should be acquired through purchase, donation or trade by the federal government or other entities. The federal government should appropriate necessary funds for the purchase of these rights in order to preclude any future mining within the buffer zone. It is essential that these purchase negotiations be efficient, speedy, fair, and conducted in good faith (to preclude litigation where ever possible). The spirit and intent of these negotiations must be to compensate minerals rights owners for their legal rights. (This proposal is in no way intended to provide legal loop holes which would preclude fair and just compensation.)

If the federal government is not successful in acquiring reserved property rights in a timely manner based on mutually acceptable terms, permitted mineral extraction is acceptable in areas not impacted by plutonium and other waste storage, contamination and cleanup activities. This includes any currently proposed mining shown on the recommended Future Site Use map that is subsequently permitted.

Any new proposals for mineral extraction are subject to Jefferson County Land Use Regulations, and review by State permitting agencies. Water quality issues for adjacent municipalities should be included in the review. All mineral extraction should be consistent with other values stated in this document, such as protecting human health and safety and critical natural environments.

All mineral extraction sites should be concurrently reclaimed during mineral extraction as open space and/or water storage.

The Resource Management Plan will address oil and gas exploration. Oil and gas exploration applications should also be submitted to an open and public process, whether through the DOE site use review process or an applicable local review process. Applications should be submitted to all affected communities. The potential spread of contaminated materials due to oil and gas exploration should be carefully studied before permitting to ensure long-term health and safety.

Internal Roads: Only the minimum number of roads should be retained and no new roads should be built unless they are found to be needed for cleanup, fire, or other safety activities. Roads that are determined to be unnecessary should be returned to a natural habitat.

Open Space: The majority of the buffer area should be preserved open space for future environmental research, and natural and cultural resource management. None of the site impacted by plutonium and waste storage, contamination, and cleanup activities should be open to the general public and no trails or other public facilities should be developed during this cleanup phase.

Resource Management Plan: A Resource Management Plan (or Plans), involving all public and private stakeholders, should be developed to ensure the restoration, preservation and maintenance of the natural environment and to define a future direction for the site as a historically significant education, interpretive, research, and environmental technology area. The Plan should also define a management and resource preservation program to ensure this direction is accomplished. The Resource Management Plan, which may be implemented over time as initial cleanup is completed, should address allowable uses, restrictions related to specific uses, location requirements for specific uses, visitor use carrying capacity, educational and interpretive programs, preservation areas, long-term natural and cultural resource protection, maintenance and management, as well as other elements necessary to ensure an environmentally sensitive management program.

Natural areas should be managed by the federal government until a multi-jurisdictional resource management team is formed and given responsibility and federal funding for management of the buffer zone. This team should include Jefferson County, Boulder County, and surrounding cities and towns.

Critical Habitats: Those areas designated most sensitive in the site suitability analysis (steepest slopes, least stable soils, riparian areas, most significant habitat, highly vegetated areas) should be protected. Endangered or threatened species' habitats, areas of tall prairie grass, and other areas felt to include unique and irreplaceable resources should be protected and retained as open space for research and wildlife preservation. (See Appendix B, Opportunities & Constraints, and draft Preble's Meadow Jumping Mouse maps.) Mineral extraction, oil or gas exploration, trail development or any other activities around these critical areas should be done so as to ensure the long-term preservation of the area.

Significant Natural Heritage Resources: The Rock Creek drainage has been classified by the Colorado Natural Heritage Program as a "natural heritage conservation site," significant because of its rare habitats and associated species. Due to this status, an implementation plan for designation and protection of the Rock Creek area should be completed during this phase to ensure sensitive management and preservation of this resource. The plan should address protection measures needed both within and surrounding the drainage to ensure appropriate management. This recommendation is not intended to preclude any other recommendations made in this report.

National Environmental Research Park Program: The Rocky Flats site should be included in the National Environmental Research Program and should be supported by the DOE Office of Energy Research and the DOE Office of Environmental and Waste Management. We support the inclusion of Rocky Flats into this program, recognizing that some public exclusion may be required in certain areas to maintain the natural landscape while activities in the industrial area could involve even additional ecological studies. This recommendation is not intended to preclude any other recommendations made in this report.

Cultural Resource Preservation: Significant historic cultural and historic resources should be identified, characterized, decontaminated, stabilized, and preserved wherever possible. This process should begin during this phase and continue through Phase II. Their preservation and management should be included in the Resource Management Plan.

Transportation Corridor: The working group, as a whole, did not arrive at a consensus about construction of the Northwest Parkway on-site (see section below). Nothing in the report is intended to advocate for or to oppose the Parkway. However, the working group recognizes the importance of transportation infrastructure for the area's future. The consensus future use map does not prescribe a precise right-of-way, but does include an illustrative 1000-foot-transportation corridor on-site adjacent to NREL (National Renewable Energy Laboratory). Others will determine whether or not this will be used for a parkway.

ISSUES WITHOUT FULL CONSENSUS

1. **Construction of a Regional Transportation Parkway:** The Group discussed whether a 1,000-foot wide section of the northwest corner of the buffer zone, southeast of the NREL site, should be reserved as a right-of-way for a 300-foot wide regional transportation linkage, if necessary, and released to the appropriate entity for planning, design, implementation, and long-term maintenance. This link would be without interchanges and without adjacent development within the buffer zone. The corridor would protect critical habitats and would not impact any endangered species.

- Members supporting construction of the regional parkway do so based on needs to:
  - employ safer routes for transporting waste and other dangerous materials, including improved transportation corridors off-site;
  - allow waste to be transported around rather than through the major metropolitan area (The currently authorized transportation route transports waste north on 93, east on 128 to Highway 36, and south to I-25 through Denver.);
  - maintain and cultivate Rocky Flats' positive impact on the economic health of the metro area;

- facilitate nearby industrial and commercial development to replace lost jobs and create new jobs;
- provide viable regional transportation linkages;
- coordinate this effort with DRCOG planning projects and other pertinent planning processes;
- site the corridor in an area that creates the minimum impact on the landscape due to grading, alignments, and disturbance of existing open space (This alignment would be in lieu of one in the Boulder County Open Space and City of Boulder Open Space.);
- provide accessibility to the Parkway for east-west traffic.

- Members opposing construction of a regional parkway and corridor do so based on concerns about:

  - protecting public health from mishap at Rocky Flats through the preservation of the maximum buffer area between the community and hazardous processes, stored plutonium, and other hazardous materials at the site;
  - maintaining security at Rocky Flats by preserving the maximum buffer zone;
  - preserving the ecological values of the area;
  - preventing the fragmentation of existing habitat;
  - managing growth and urban sprawl.

2. **Noncleanup Related Uses of Core Industrial Area:** The Group discussed whether facilities in the industrial area should be utilized for noncleanup related uses during Phase I. The following criteria were discussed for such activities:

- No demonstrated risk from contamination or cleanup and waste management activities to workers or any other people using the site, as determined by the Health and Safety Protection Areas;
- Industry itself must be clean and safe;
- Industry must be related to non-military activities;
- Industry should utilize existing work force, structures, and equipment, with no new construction;
- Activities should not contribute waste to nor interfere with ongoing cleanup;
- Environmentally sensitive use;
- Should not interfere with the continuation of on-site inspections so as not to impact arms control treaties.

- Members supporting uses unrelated to cleanup in Phase I do so based on needs to:

  - replace jobs for Rocky Flats' workers;
  - make effective use of taxpayers' investment to utilize existing work force, maintain skills, and prevent obsolescence of structures, and equipment;
  - maintain and cultivate Rocky Flats' positive impact on the economic base of the community;
  - raise supplemental cleanup funding.

- Members opposing uses unrelated to cleanup in Phase I do so based on concerns:

  - about possible contamination of equipment brought into the protected area;
  - for the safety of noncleanup related workers, given the inherent dangers and close proximity of stored plutonium;
  - that no analysis has been done to demonstrate that the site is safe for noncleanup related workers;
  - that outside uses and workers will interfere with cleanup and waste management activities.

3. **Office/Commercial/Light Industrial, NE Corner:** The group discussed whether eighty acres at the intersection of Highway 128 and Indiana Street should be designated for office, commercial, light industrial use, where the area is free of contamination and where development will not interfere with critical habitats. Proponents felt that this land should be released to local entities once plutonium storage, waste storage and decontamination and decommissioning activities do not pose a risk to human health and safety.

- Members supporting such designation do so based on needs to:

  - make acquisition of land paid for by the taxpayers accessible to the private sector if at all possible;
  - compensate for the extensive open space contributions made from the planning area of adjacent municipality;
  - maintain and cultivate Rocky Flats' positive impact on the economic base of the metro area;
  - provide land for a diversification of tax and economic bases in adjacent communities;

- provide a balance between economic development and ecological interests;
- develop an area that is away from the core area;
- provide support for commercial and office space for the Rocky Flats area.

• Members opposing such designation do so based on the concerns about:

- protecting public health from mishap at Rocky Flats through the preservation of the maximum buffer area between the community and hazardous processes, stored plutonium, and other hazardous materials at the site;
- maintaining security at Rocky Flats by preserving the maximum buffer zone;
- preserving natural environment;
- managing growth and urban sprawl;
- providing a balance between economic development interests and health, safety, and environmental interests by not allowing buffer zone development during Phase I;
- the lack of any pre-existing right of the adjacent municipalities to acquire this land;
- the need to consider input on this issue from all surrounding communities;
- the need to consider the impact of potential development of the Rocky Flats buffer zone on adjacent open properties.

4. **Grazing:** In Phase I managed grazing might be permitted in certain areas of the buffer zone if it could be demonstrated that grazing could be done in a manner which would not negatively impact the natural environment, if stock would not harm the historic resources, and if it would in no way impact the health and safety of the people and grazing stock. However, there are still strong public health and safety concerns, including water quality concerns, regarding this use at this time.

PHASE II RECOMMENDATIONS: STORED PLUTONIUM AND BACKLOGGED RADIOACTIVE AND HAZARDOUS WASTE REMOVED FROM SITE

SUMMARY

The focus for the site should be on continued cleanup and environmental preservation and management. More public access to the site could be allowed because of the risk reduction brought forth by removal of stored plutonium and hazardous waste. For example, outside the areas impacted by contamination and cleanup activities, managed visitor use should be permitted, as determined by the Resource Management Plan.

HEALTH AND SAFETY

Cleanup: Cleanup activities should be the major focus during this period, coupled with natural resource preservation. The general public should not be permitted in areas impacted by cleanup or contamination. The importance of preservation of the natural environment should continue to be a high priority and given major consideration whenever cleanup technologies are chosen and cleanup is implemented. In natural areas, if the contaminants are stabilized and do not cause a risk to human health and safety and cleanup methods have not been found which do not damage the natural environment, then the natural environment should remain undisturbed.

Additional cleanup, as technology allows, should be provided toward reaching the ultimate goal of achieving average background levels of contamination for Colorado. Cleanup to background levels for Colorado should only be done in this area as long as the methods do not disturb the environment to the point that the natural environment cannot be replenished or quickly returned to its natural healthy state.

Public Use: By Phase II a larger area should have been cleaned up to a level which may allow for additional public access, as determined by the Resource Management Plan. Primary uses should include edu-

cation, visitor interpretation, open space, and continued research and resource management. Managed visitor use should be permitted in areas outside the areas impacted with contaminants or by cleanup, decontamination or decommissioning activities.

FUTURE USES - CORE INDUSTRIAL AREA

Cleanup: Former production buildings should be decontaminated then decommissioned. Cleanup of related soil and water should continue.

Environmental Technology: Same as in Phase I.

Public Access: The general public should not be permitted in areas impacted by contamination and cleanup activities. Those portions of the site should be used by authorized personnel responsible for cleanup or specifically approved activities only. Managed use should be permitted within areas outside the areas impacted by contamination and cleanup activities.

Education/Interpretation: Primary interpretive facilities such as a visitor center, museums, interpretive walks and tours, and support facilities such as rest rooms could be provided outside the areas impacted with contamination or cleanup activities. Visitor use should be carefully managed to protect public health and safety and minimize disturbance to the natural and cultural resources.

Mineral Extraction: same as in Phase I.

FUTURE USES - BUFFER AREA

National Renewable Energy Laboratories Wind Site: same as in Phase I.

Public Use: The general public should not be permitted in areas impacted by contamination and cleanup, decontamination, and decommissioning activities. The impacted areas of the site should be used only by authorized personnel responsible for cleanup and related activities. Managed visitor use should be permitted in areas outside the area impacted by contamination and cleanup activities which are designated as open space depending on resource sensitivity.

Acquired Mineral Extraction Rights: Reserved rights which were acquired by the federal government during Phase I should become part of the preserved open space system and used for resource preservation. Some areas may be permitted to have public educational and interpretive use depending on resource sensitivity.

Mined Lands: Permitted mineral extraction is acceptable where the federal government has not acquired all rights as outlined in Phase I. Mineral extraction should not be allowed in areas impacted by cleanup, decommissioning or decontamination activities until the area is cleaned up by the DOE in a timely manner.

New proposals and applications for mineral extraction or oil and gas exploration should follow the same process outlined in Phase I.

Grazing: Managed grazing could be permitted in certain areas if it could be demonstrated that grazing could be done in a manner which would not negatively impact the natural environment, if stock would not harm the historic resources, and if it would in no way impact the health and safety of humans or grazing and stock animals.

Natural Resource Preservation: Resource preservation continues to be a high priority when considering cleanup. If new cost-effective, environmentally sensitive, cleanup technologies have been developed, this should progress in ways to allow cleanup to background levels.

Critical Habitats: Same as in Phase I.

Open Space: Lands outside the areas impacted by contamination and cleanup activities should be retained as open space as shown on the future use map. Only activities related to preservation of historic or cultural resources, cleanup, research, site management, and managed interpretive use should be permitted.

Resource Management Plan: The Resource Management Plan and programs developed during Phase I should be implemented during this time frame.

Internal Roads: Same as in Phase I.

Cultural Resources Preservation: Significant historic and cultural resources identified in the buffer and/or the industrial area should be decontaminated and decommissioned as part of the overall cleanup program and should be well maintained in a manner which preserves their significant characteristics as determined in the studies during Phase I.

Education Plan/Interpretation: An education and interpretive plan and program should be completed in Phase I and implemented in Phase II on lands outside the areas impacted by contamination and cleanup activities. The site should be recognized as nationally significant in respect to the Cold War Era and the site's biodiversity. Interpretation should be provided in a manner which does not significantly harm the natural and cultural resources on the site and should be carefully managed to protect the public health and safety.

ISSUES WITHOUT FULL CONSENSUS

1. **Noncleanup Related Industry:** There is full group support for noncleanup related industry in the industrial area during phase II, and the following minimum criteria were agreed upon for such industrial uses:

- No demonstrated risk from contamination or cleanup and waste management activities to workers or any other people using the site, as determined by the Health and Safety Protection Areas;
- Industry itself must be clean and safe;
- Industry must be related to non-military activities;
- Industry should utilize existing work force, structures, and equipment, with no new construction;
- Activities should not contribute waste to or interfere with ongoing cleanup;
- Environmentally sensitive use;
- Should not interfere with the continuation of on-site inspections so as not to impact arms control treaties.

However, there was not consensus on the inclusion of the principles for sustainable development (as articulated by the President's Council for Sustainable Development) as additional criteria, as these principles are still evolving. Some of the group supported including these principles, and others did not.

2. **Office/Commercial/Light Industrial, NE Corner:** Same as in Phase I

3. **Construction of a Regional Transportation Parkway:** Same as in Phase I.

PHASE III RECOMMENDATIONS: INITIAL CLEANUP COMPLETE

SUMMARY

Given the long-term time frame, Phase III is intentionally vague in order to respect the unforeseen variables the future may hold.

The entire site should be cleaned up to safe levels and should primarily be managed as a natural and cultural resource preserve for ecological and technological research and for public education and interpretation. The industrial area should be maintained as an employment center. The site should be managed for visitor use related to these designated purposes.

HEALTH AND SAFETY

Cleanup/Monitoring/Research: The entire site and the surrounding areas off-site which have contamination due to Rocky Flats should be cleaned up to background levels over the long-term future. Plutonium will have been completely removed and stored off the site.

FUTURE USES - CORE INDUSTRIAL AREA

Environmental Technology: Same as in Phase I and II.

Mineral Extraction: Same as in Phases I and II.

FUTURE USES - BUFFER AREA

Mineral Extraction Rights: All reserved property rights should have been acquired by this time, if acquisition was feasible. If acquisition was not feasible, mineral extraction should be concluded by this time.

National Renewable Energy Laboratories Wind Site: Same as in Phases I and II.

Open Space and Resource Management Plan: The buffer area should be primarily retained as preserved open space and should be managed as indicated in Phases I and II. Critical natural areas should be protected.

Plans and programs should be completed and should be adjusted as needed to respond to future needs.

Cultural Resources Preservation: Long-term preservation and management of significant cultural resources should continue.

Education and Interpretation: Continue to improve interpretive programs established in the earlier phases.

Grazing: Same as in Phase II.

Internal Roads: Same as in Phases I and II.

ISSUES WITHOUT FULL CONSENSUS

1. **Construction of a Regional Transportation Parkway:** Same as in Phase I and II.

2. **Office/Commercial/Light Industrial, NE Corner:** Same as in Phases I and II.

3. **Noncleanup Related Uses in the Core:** Same as Phase II.

Appendix

APPENDIX A

Future Timeline Assumptions

Phase I: Plutonium and Radioactive and Hazardous Waste Inventoried On-Site (approximately 2000 - 2025)

Plutonium (Pu) liquids, oxides, and residues are being stabilized beginning in 1994 and are proposed to be consolidated in safer forms and storage configurations by approximately the year 2000. The Future Site Use Working Group assumes that the existing buffer zone will continue in its present use during the stabilization activities.

After Pu consolidation, the Protected Area could be reduced in size. Stable Pu will be stored on-site until a permanent site outside Colorado is approved. A rough estimate for off-site Pu removal is the year 2025. Earlier removal is possible if an interim storage site is approved.

Various wastes left over from production will be temporarily stored on-site during Phase I. They should be in compliance with applicable environmental laws. Off-site shipments of both transuranic and low level mixed waste will begin (assuming receiving facilities open), but the backlog will not be gone until 2025. Some low level and low level mixed waste may be stored in a long-term, monitored, retrievable facility in or adjacent to the Industrial Area after full review by regulators and the community.

Former production buildings are being "deactivated," meaning non-fixed equipment, supplies and materials which are no longer required because the building has ceased active operation are removed. Any resulting wastes requiring treatment will be treated on-site. This effort will take until approximately 2020.

Environmental restoration of soil and water outside the Industrial Area to initial cleanup levels will occur during the first five to ten years, with further cleanup activities taking an additional ten to fifteen years depending on technology, funding, and cleanup levels.

Phase II: Stored Plutonium and Backlogged Radioactive and Hazardous Waste Removed From Site (approximately 2025 - 2080)

This phase begins when the Pu is moved off-site.

The backlog of wastes will have been moved off-site to approved storage or disposal facilities. Sufficient compliant treatment and temporary storage exists on-site for wastes generated by cleanup activities. These wastes are routinely shipped off-site. Some low level and low level mixed waste may be stored in a long-term, monitored, retrievable facility in or adjacent to the Industrial Area after full review by regulators and the community.

Former production buildings are being "decontaminated," meaning surfaces of the building and fixtures are being cleaned to predetermined levels, then "decommissioned," meaning fixtures and equipment are removed. Some buildings may then be dismantled. These activities will put the buildings into a configuration where active controls are not necessary to protect the public and the environment. These activities could take 60 years or more for former nuclear production buildings.

Contamination in soil and water in the Industrial Area is being cleaned up in conjunction with decontamination or dismantlement of adjacent buildings.

Phase III: Initial Cleanup Complete (2080 +)

Buildings have been cleaned up and put in a safe, low maintenance configuration or demolished.

Soil and water contamination has been removed as much as practicable. Further cleanup occurs as improved technology allows.

Air, water, and soils are monitored for release or migration of contaminants. Acceptable cleanup levels are revisited by DOE, regulators and the community periodically based on results of monitoring and success of new technology.

APPENDIX B

Existing Conditions at Rocky Flats

This section summarizes the existing conditions at Rocky Flats and provides a summary of the information which the Working Group used when making future use decisions. To obtain more information, refer to the bibliography which lists studies and papers completed for the Working Group or DOE.

Natural Resources

Rocky Flats straddles the boundary or ecotone between the high plains and montane habitats. This leads to high species diversity since species typical of both regions are represented. Many biologists believe that the site buffer zone contains a remarkable amount of biological diversity and is a valuable resource.

The climate at the site is similar to the rest of the area except for the winds, which are above normal for the area. Wind speeds at the site can peak to 90 miles per hour during the winter and spring. Non-peak winds are typically around 25-40 miles per hour and can last for many hours. These conditions have generated interesting adaptations in both the site vegetation and wildlife and have also caused increased health and safety concerns since some of the contaminants on-site can be spread by air.

The site's ecological system is influenced by the region's semi-arid climate with an average annual rainfall of only about 16 inches. Because of these conditions in conjunction with the winds, most of the site is covered with dryland vegetation, primarily grasslands interspersed with ponderosa pines. Wet areas are localized but significant, especially when supported by natural water flows. They tend to be on hillsides and valley bottoms. One special wetland is Antelope Springs, an 80 acre complex of artesian spring-fed vegetation at the headwaters of Woman Creek. Independent analysis of the shrublands concluded that they are unique to the site.

Public access and use has been restricted on the site over the past 20 to 40 years which has helped preserve the Preble's Meadow Jumping Mouse habitat. The Preble's Meadow Jumping Mouse is believed to be a rare small mammal with a large reproducing population on the buffer zone at Rocky Flats. This mouse is being considered for listing as a threatened or endangered species under the Endangered Species Act.

There are three distinct drainages at the site including Rock Creek, Walnut Creek, and Woman Creek. Walnut and Woman Creek contain several ponds used for water management. Rock Creek, which drains to the north, has been relatively undisturbed for the last 20 years and its flows are natural. Rock Creek has been assessed by the Colorado Natural Heritage Program for its ecological value and found to have rare, valuable, and viable natural resources. The Colorado Natural Heritage Program is a research entity in the College of Natural Resources at Colorado State University and part of an international network of conservation data centers. The study concluded that Rock Creek contains highly significant elements important for the protection of Colorado's natural diversity and encourages DOE to take actions that will protect and appropriately manage the site.

A site sensitivity analysis was completed for the Working Group and defines areas which have a high to low sensitivity for development. (See the Opportunities and Constraints Map in Appendix B). The highly sensitive areas include areas such as wetlands, seeps, riparian shrublands, landslide areas and slopes greater than 20%. In addition, xeric tallgrass prairie was considered rare and recommended as a conservation site. On the western side of the buffer zone stands an island of dry tallgrass prairie. Not unlike the prairie that once covered thousands of square miles of the plains, this 800 acres remnant is believed to be one of 20 left in the world.

Due to the large amounts of adjoining open space, many with excellent habitat values, the wildlife associated with the buffer zone are able to migrate freely. This encourages sizable mule deer and predator populations.

Opportunities & Constraints

- High Sensitivity
- Moderate Sensitivity
- Low Sensitivity
- Xeric Grasslands Potential Tallgrass Prairie Conservation Sites
- Buildings or other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Contours (20' intervals)
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc - 1991.
Hydrology provided by USGS - (date unknown)
Opportunity and constraint categories provided by BRW INC - Aug. 1994.

Scale = 1 : 7200
1 inch represents 600 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology S

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None Assigned
suitabil-0001
November 11, 1994

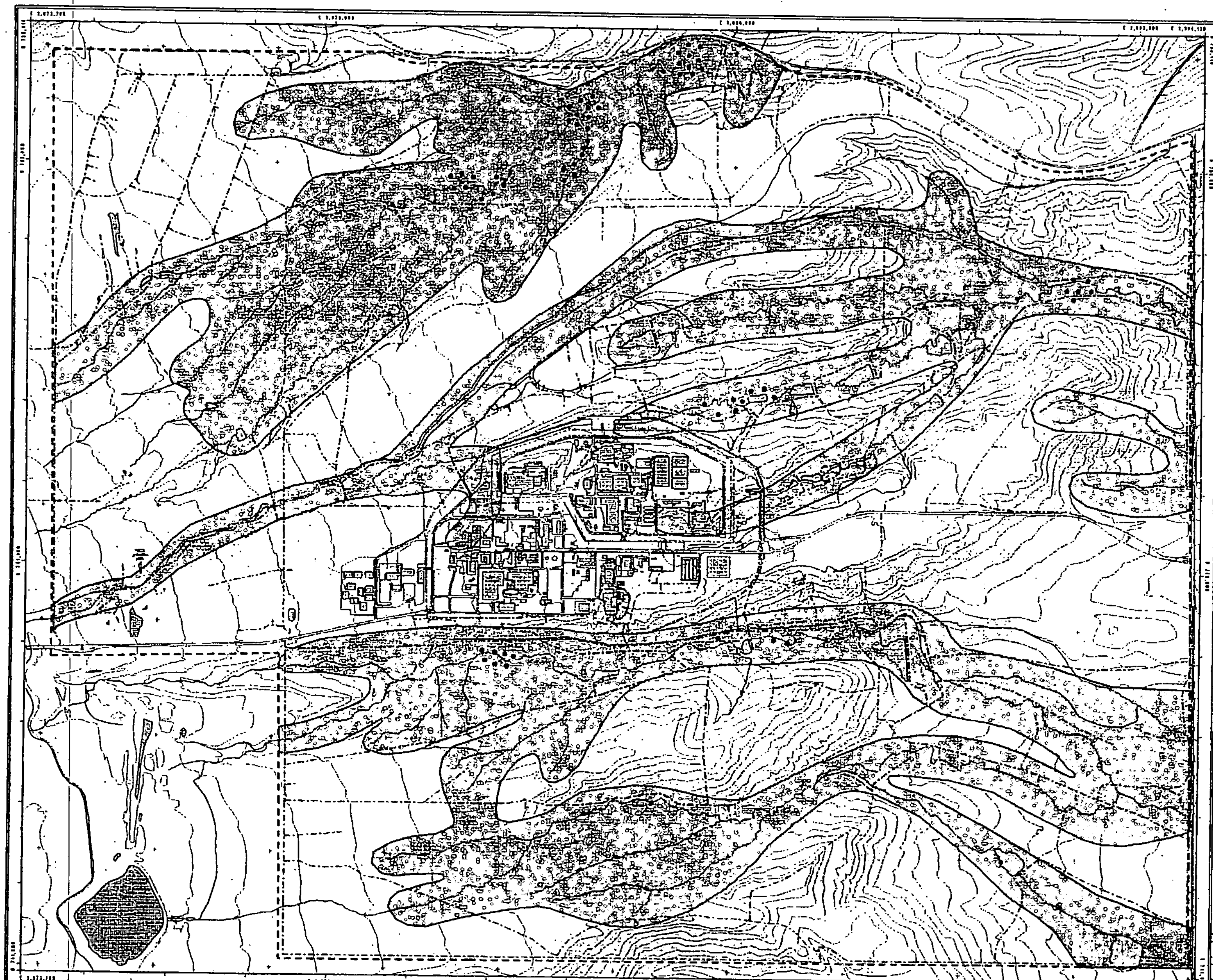

Figure 1
Capture Locations of Preble's Meadow Jumping Mouse and Its Probable Range

Probable Range

Records of Preble's Meadow Jumping Mouse (Zapus hudsonius preblei)

Buildings or other structures

Lakes and ponds

Streams, ditches, or other drainage features

Fences

Contours (20' intervals)

Rocky Flats boundary

Paved roads

Dirt roads

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Draft: Currently under study for refinement

DRAFT

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Rocky Flats Environmental Technology Site

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None Assigned	GIS Analyst
jm-0001	Checked
September 08, 1994	Approved

A Northwest Parkway is being considered by many different entities to link areas all around Rocky Flats to U.S. 36 and further eastward to I-25 and the Denver International Airport. The proposed parkway is

- Ecological reserve use
- Comparison of the sampling results to background concentrations

Cultural Resources

The Rocky Flats site has had an interesting and unique history starting with the earliest settlers through the cleanup mission at Rocky Flats today. A few important facts about the site are mentioned below in a summarized timeline.

Before

1880 Due to the site's lack of permanent surface water, limited cover, and high winds, Native Americans used the site primarily for hunting or to pass through on their way to other areas.

1880's Rocky Flats was settled by ranchers who grazed and mined the land. Poor and rocky soil made the land more suitable for grazing than for growing crops. Historic ranch structures still exist on the site as well as remnants of a stage coach stop.

1942 The top secret Manhattan Project was formed to build a U.S. atomic bomb in order to counter an expected nuclear monopoly by Nazi Germany. For security purposes, the nuclear weapons facilities were scattered around remote areas of the country to preclude interruption of weapons production by foreign attack.

1951 The Atomic Energy Commission (AEC) bought land for Project Apple (later to be named Rocky Flats)

1952 Rocky Flats began production of nuclear bomb cores.

1956 The Denver Post reported that in a semi-annual report issued by the AEC, the closely guarded Rocky Flats Plant is identified as a "weapon production facility," with no further explanation of the plant's secret function.

1972 Due to contamination of surrounding land, additional buffer zone was purchased (4,600 acres) making the site 6,500 total acres.

1989 Approximately 80 FBI and EPA agents arrived to carry out a search to collect evidence of alleged violations of the Resource Conservation and Recovery Act, and Clean Water Act. In an out-of-court settlement, Rockwell International, site operator at the time, later pleaded guilty to ten environmental violations and paid a fine. In November, production of nuclear components was temporarily suspended. Production was never resumed.

1992 Then-President Bush cancelled the W-88 warhead program and ended four decades of U.S. nuclear weapons production. Rocky Flats mission was changed from weapons production to environmental management.

A state-wide archaeological survey was conducted in 1991 to evaluate the cultural resources for National Register of Historic Places nomination and further studies are now being done. Due to the site's role in the Cold War, some feel that the overall site has cultural importance to the region and the nation.

Socio-Economics/Workforce

Rocky Flats began operations in 1951 with 133 employees. By 1984 the plant work force had reached peak weapon component production with 5,990 employees. This figure includes prime contractor and security employees, but does not account for the relatively few DOE site workers. The following figures are comparable. The skill mix was focused on production with maintenance, security, and safety and health as support.

During 1991 Rocky Flats had its highest employment with approximately 7,500 contract employees (EG&G and Wackenhut Security). In addition there were about 1,500 employees working for subcontractors or for DOE. This upsurge in employment was due to preparation for the resumption of weapons production and implementation of more stringent environmental, safety and operational standards.

In 1992, Rocky Flats was given a new mission of environmental restoration, waste management, facility transition and economic development. As a result, the emphasis on skills has shifted from production activities to environmental activities with the support of maintenance, security, and safety and health still needed. The contract employment in June, 1995, is approximately 6,650 with an expected drop to 4,200 by September, 1995. The desire to clean up the site efficiently, coupled with the need for safety, has required that the number of employees at the site remains high.

Thornton, and Northglenn. Currently there is a project underway called the Standley Lake Protection Project which will intercept the occasional runoff of water from Rocky Flats via Woman Creek. The reservoir being constructed is located along Woman Creek upstream of Standley Lake but downstream of Rocky Flats. The assessment of off-site contamination is an ongoing project and preliminary risk assessments indicate that the contamination on-site is not of sufficient risk to require remediation.

The remediation of off-site contamination remains the responsibility of DOE and is part of the overall goal of site cleanup obligations at the facility.

Mineral Rights and Extraction

Although DOE owns the surface rights on Rocky Flats, about 94% of the mineral rights are held by private owners. The mineral rights are diverse and include such minerals as sand and gravel, coal, oil, and natural gas. Different mineral rights on the same land are sometimes owned by different private entities, making the pattern of ownership complex. Currently Western Aggregates, Inc. is mining areas adjacent to the western boundary of Rocky Flats and has a permit to mine lands within the Rocky Flats boundary adjacent to where mining is currently occurring. In addition, other private mineral rights owners or leases are mining along the western area of Rocky Flats. The state-owned lands adjacent to the southwestern edge of Rocky Flats (section 16) has also been permitted for mining.

Some of these minerals, especially sand and gravel, are being pursued for expansion due to local growth and development and for replacement of depleted sand and gravel operations in the metro area. Western Aggregates, Inc. has petitioned the state to amend the existing permit on Rocky Flats to include several hundred additional acres for sand and gravel mining in the northwest corner of the site. Within this submitted permit, sensitive lands within the Rock Creek drainage would be conserved for wildlife protection and would not be mined.

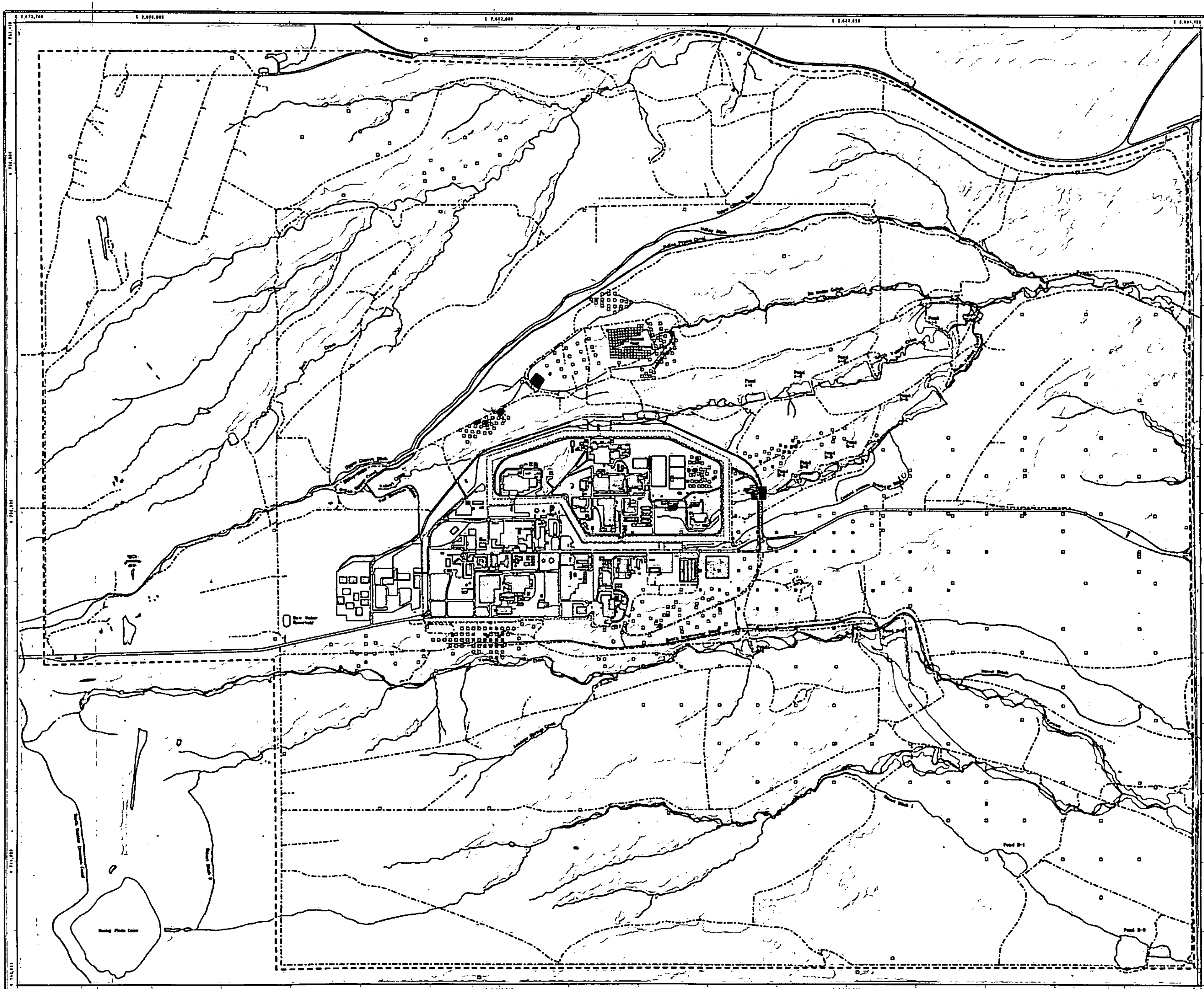
Grazing

Grazing in the area of Rocky Flats has occurred since the early ranching days in the 1880's. The Rocky Flats site was grazed before it came under federal ownership, but as the site developed and greater protection was needed, grazing was eliminated. Therefore some lands have not been grazed for well over 20 years. Whether or not grazing should occur on the site is strongly linked to management and the unique natural resources at the site. Poorly managed grazing can seriously damage the natural resource while carefully managed grazing can better protect the natural resource.

If grazing is considered on Rocky Flats, management decisions need to be carefully planned with the top priority being to avoid contamination while preserving the abundance and diversity of existing wildlife as well as the Preble's Meadow Jumping Mouse habitat. Consideration also needs to be given to preserving some of the undisturbed areas as an ecological laboratory to study the impact of grazing versus non-grazing.

federal funding, and efficiency and productivity gains at the site. These uncertainties affect use and development of adjacent land.

tainous areas. Nuclear shipments are restricted to off-peak periods when traffic activity is low.



Rocky Flats Site

Commercial Exposure Scenario at Surface Soil Locations

Preliminary Overview

Sampling Type

- Surface Soil Scrape
- Surface Soil Chemical Above Risk Based Concentration

Standard Map Features

- Buildings or other structures
- 100 year floodplain
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)

The analytical data from the Rocky Flats Environmental Database System (RFEDS) was used to determine the locations that may contain chemicals above stated base concentrations.

DISCLOSURE:
THIS MAP IS NOT A RISK ASSESSMENT AND IS NOT INTENDED TO DEFINE THE ACTUAL SITE CONDITIONS. It is not to be used as a basis for any decisions regarding potential remediation action at Rocky Flats.

This map is a simple graphical representation of sampling locations where chemicals have been detected above concentrations that may have a potential carcinogenic risk of 1/1,000,000. ... It is intended to be an aid to the Rocky Flats Future Site Use Working Group for summarizing large quantities of information.

Scale = 1 : 7200
1 inch represents 600 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
EG&G ROCKY FLATS

Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464

None Assigned			
com-83		L. Johnson / PM	
January 06, 1995			

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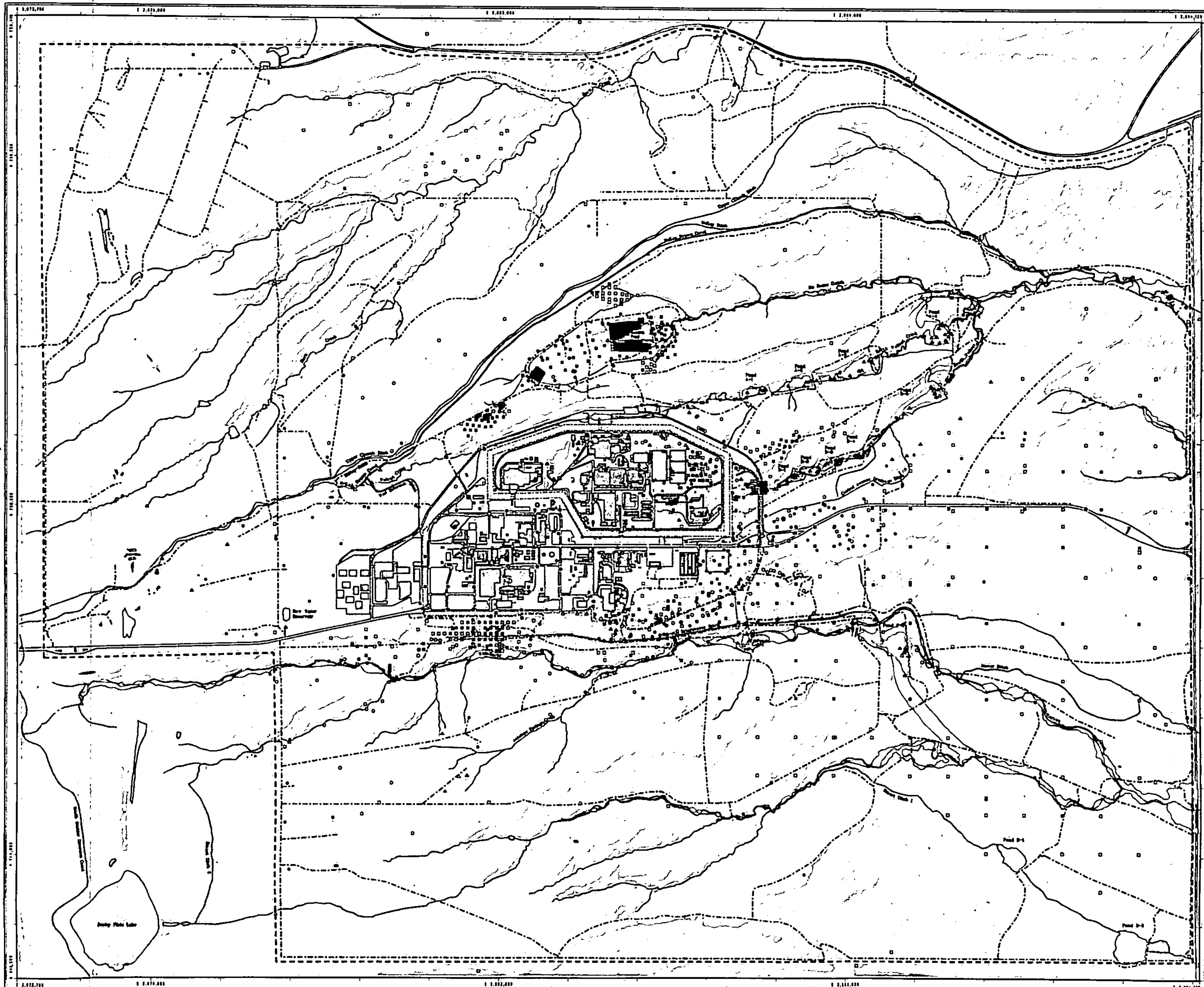

Rocky Flats Site

Residential Exposure Scenario at Selected Sampling Locations

Preliminary Overview

Sampling Type

- ○ Alluvial Groundwater Well
- ● Alluvial Groundwater Chemical Above Risk Based Concentration
- □ Surface Soil Scrape
- ■ Surface Soil Chemical Above Risk Based Concentration
- △ Surface Water / Sediment Site
- ▲ Surface Water / Sediment Chemical Above Risk Based Concentration

Standard Map Features

- Buildings or other structures
- 100 year floodplain
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc - 1991.
Hydrology provided by USGS - (date unknown)

The analytical data from the Rocky Flats Environmental Database System (RFEDS) was used to determine the locations that may contain chemicals above risked base concentrations.

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This map is a simple graphical representation of sampling locations where chemicals have been detected above concentrations that may have a potential carcinogenic risk of 1/1,000,000. The map has been generated using conservative assumptions. It is intended to be an aid to the Rocky Flats Future Site Use Working Group for summarizing large quantities of information.

Scale = 1 : 7200
1 inch represents 600 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
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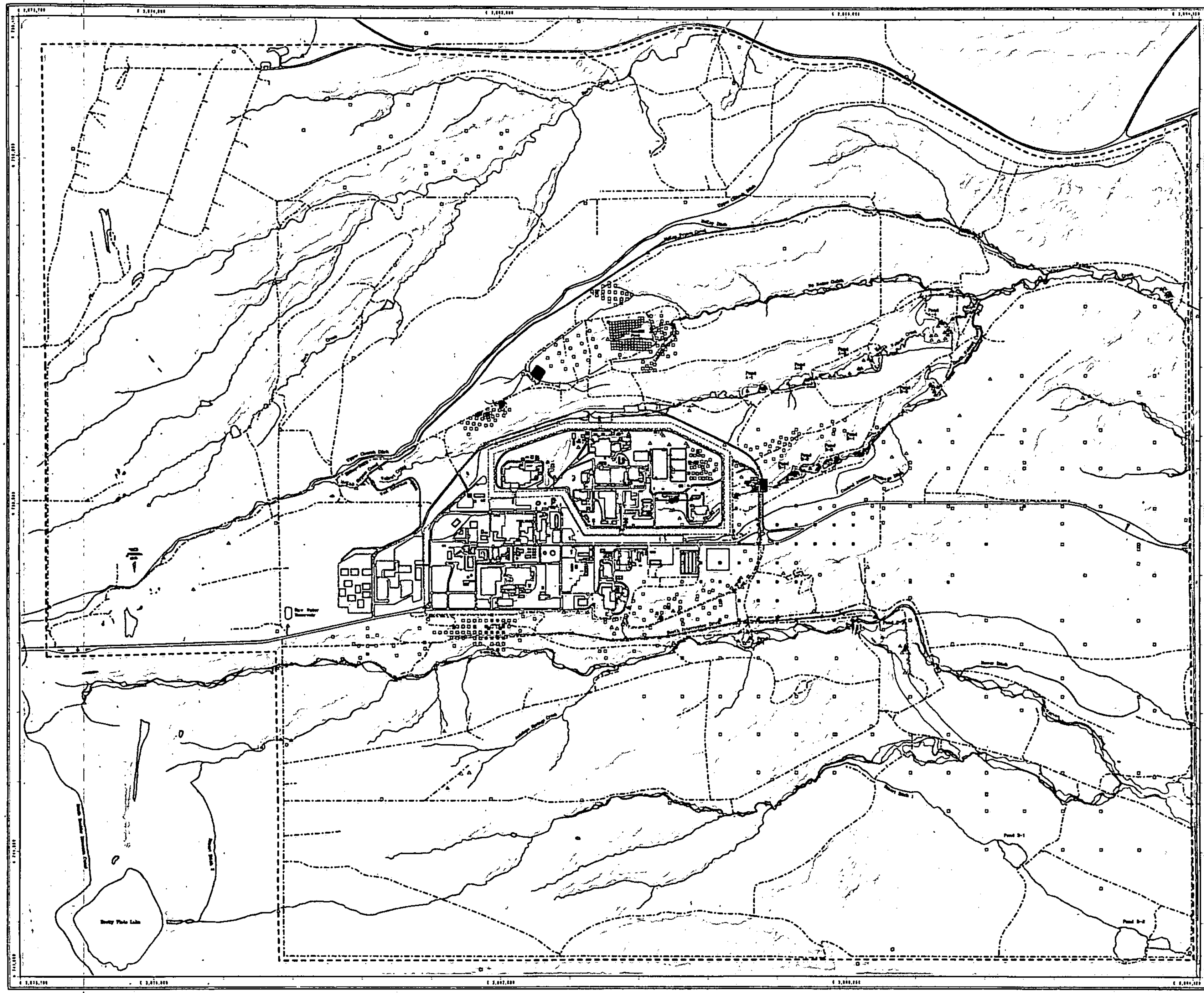
Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464

None Assigned	GIS Analyst	D. Scruggs/…	01/06/95
res-all	Checked		
January 06, 1995	Approved	L. Johnson / PSJ	



Rocky Flats Site

Ecological Worker Exposure Scenario at Surface Soil and Sediment / Surface Water Locations

Preliminary Overview

Sampling Type

- Surface Water / Sediment Site
- Surface Water / Sediment Chemical Above Risk Based Concentration
- Surface Soil Scrape
- Surface Soil Chemical Above Risk Based Concentration

Standard Map Features

- Buildings or other structures
- 100 year floodplain
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)

The analytical data from the Rocky Flats Environmental Database System (RFEDS) was used to determine the locations that may contain chemicals above risked base concentrations

DISCLOSURE:
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This map is a simple graphical representation of sampling locations where chemicals have been detected above concentrations that may have a potential carcinogenic risk of 1/1,000,000. The map has been generated using conservative assumptions. It is intended to be an aid to the Rocky Flats Future Site Use Working Group for summarizing large quantities of information.

Scale = 1 : 7200
1 inch represents 600 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
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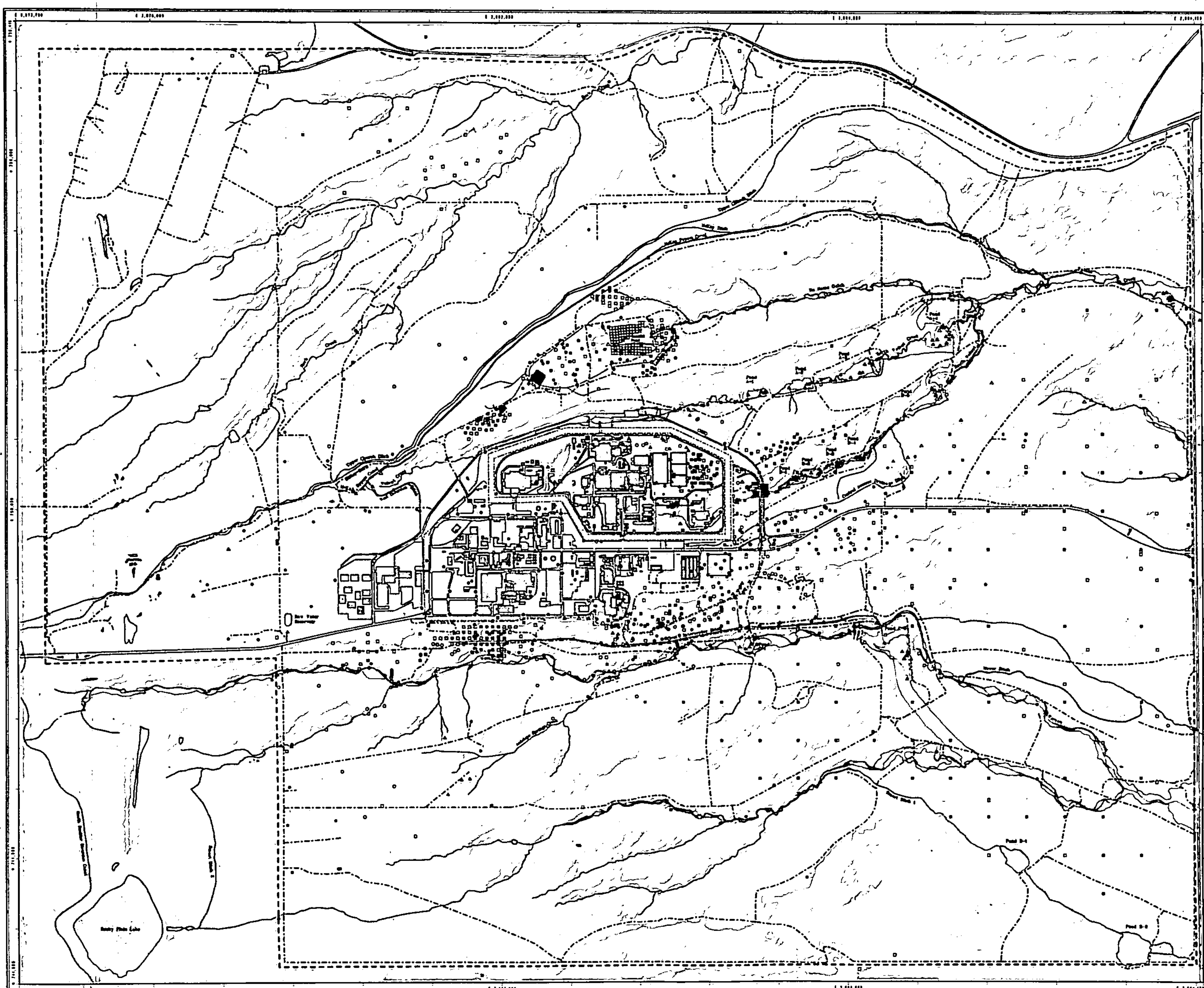
Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464

None Assigned			01/06/95
eco-ad	Checked		
January 06, 1995	Approved		



Rocky Flats Site

Above Background at Selected Sampling Locations

Preliminary Overview

Sampling Type

- Alluvial Groundwater Well
- Alluvial Groundwater Chemical Above Background Concentration
- Surface Soil Scrape
- Surface Soil Chemical Above Background Concentration
- Surface Water / Sediment Site
- Surface Water / Sediment Chemical Above Background Concentration

Standard Map Features

- Buildings or other structures
- 100 year floodplain
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Rocky Flats boundary
- Paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)

The analytical data from the Rocky Flats Environmental Database System (RFEDS) was used to determine the locations that may contain chemicals above risked base concentrations.

DISCLOSURE:
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This map is a simple graphical representation of sampling locations where chemicals have been detected above concentrations that may have a potential carcinogenic risk of 1/1,000,000. The map has been generated using conservative assumptions. It is intended to be an aid to the Rocky Flats Future Site Use Working Group for summarizing large quantities of information.

Scale = 1 : 7200
1 inch represents 600 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
EG&G ROCKY FLATS

Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464

None Assigned
backg-s8
January 09, 1995

L. Johnson / PSJ

NATURALLY OCCURRING LEVELS OF CHEMICALS DETECTED AT ROCKY FLATS*

CHEMICAL	GROUND WATER	SURFACE WATER	SEDIMENT	SOIL
	(ug / l)	(ug / l)	(mg / kg)	(mg / kg)
Antimony	30.0	30.0	26.4	15.0
Arsenic	5.0	4.3	9.8	16.2
Beryllium	2.5	2.1	6.0	18.8
Cadmium	2.5	2.5	2.5	1.3
Chromium	11.4	6.3	30.7	-
Cobalt	25	20.0	17.5	26.4
Copper	12.5	12.5	33.6	-
Mercury	0.2	0.1	0.2	1.2
Nitrate / Nitrite	2000.0	770.0	66.2	9.6
Selenium	2.5	2.5	2.9	5.3
Silver	3.0	6.0	11.8	33.0
Strontium	560.0	211.0	339.6	185.5
Vanadium	25.0	16.6	61.9	112.9
Zinc	53.6	41.7	107.4	183.1
	(pCi / l)	(pCi / l)	(pCi / gm)	(pCi / gm)
Americium - 241	0.01	0.01	1.77	0.06
Plutonium - 239, 240	0.00	0.01	5.66	0.11
Radium - 226	-	2.30	2.22	1.59
Strontium - 89, 90	-	1.20	1.09	1.24
Tritium	10.00	220.00	1047.69	1047.69
Uranium - 233, 234	-	0.82	5.29	1.77
Uranium - 235	0.04	0.10	-	0.20
Uranium - 238	0.53	-	4.62	1.91

* While the transuranic radionuclides are not naturally occurring, they are present in the environment as a result of world-wide fallout from nuclear weapons testing.

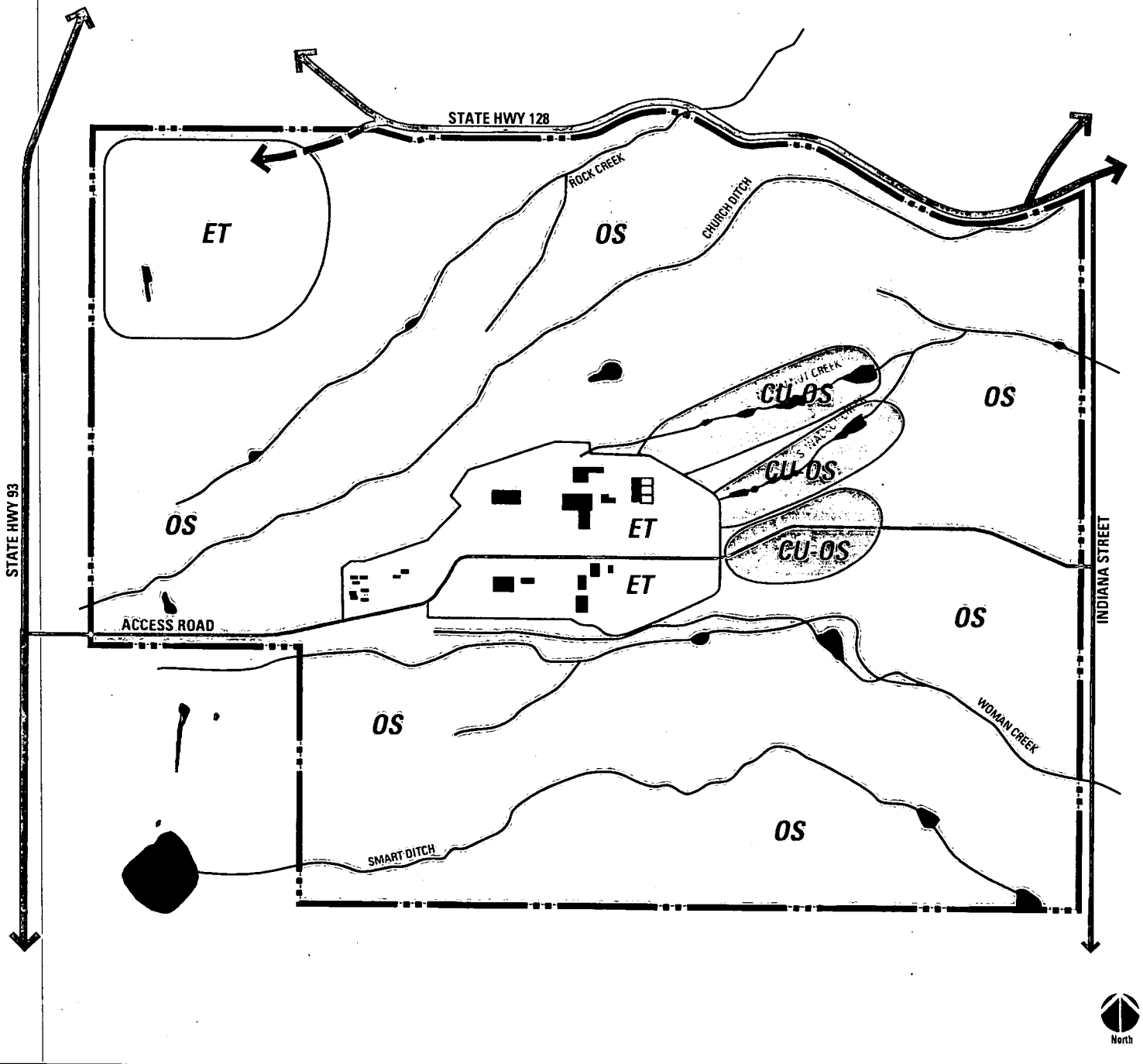
ug / l = micrograms of chemical per liter of water

mg / kg = milligrams of chemical per kilogram of soil or sediment

pCi / l = picocuries of radioactivity per liter of water

pCi / gm = picocuries of radioactivity per gram of soil or sediment

Uranium-235	2.980	2290.00	0.17	0.69	0.69	71400.00
Uranium-238	2.980	2290.00	46.00	187.00	225.00	71400.00



U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **1** (December 8, 1994)

Resource Protection and Environmental Technology

Concept:

- Entire undeveloped area open space/ preservation (no recreation or grazing)
- Highly polluted undeveloped areas cleaned up/ rehabilitated as open space/preservation
- Core cleaned up and used for environmental technology/research
- NW corner wind/solar research
- Mines rehabilitated as open space/preservation

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- OS — Open Space Preservation (no/limited access)
- CU-OS — Clean Up, Then Open Space or Recreation
- ET — Environmental Technology / Research
- Roads
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

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1245 PEARL STREET SUITE 201 BOULDER COLORADO 80302
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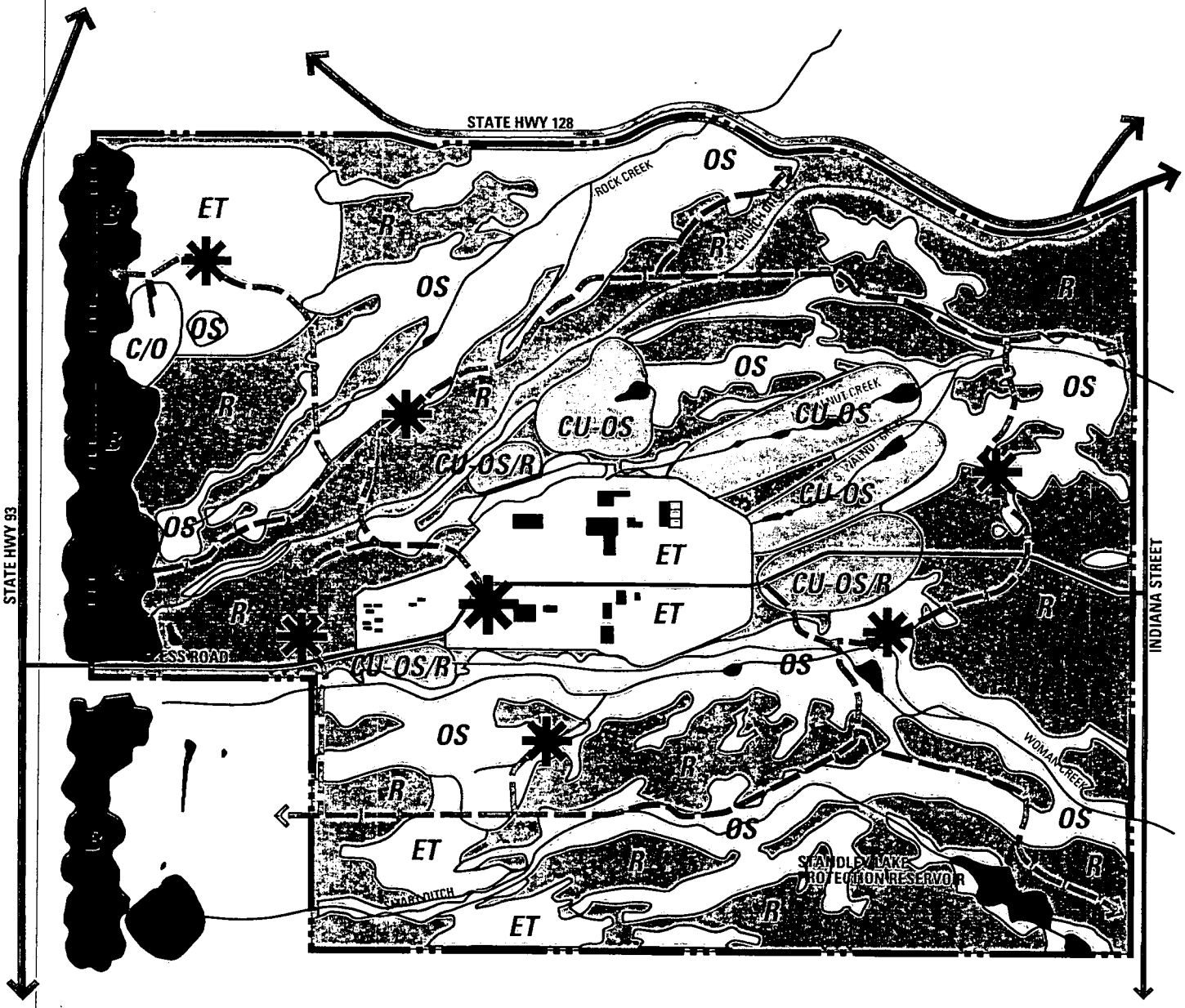

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **2** (December 8, 1994)

Recreation/Interpretation/ Environmental Technology

Concept:

- Undeveloped area passive recreation
- Highly sensitive open space off-limits or limited public use
- Major on-site interpretation of natural & cultural resources & Rocky Flats
- Orientation & education centers and/or study areas
- Regional trail linkages
- Open space buffer along Highway 93
- Highly polluted undeveloped areas cleaned up / rehabilitated as open or recreational space
- Core environmental technology (same as Alt.. 1)
- NW corner wind / solar plus special permit commercial cluster
- Standley Lake protection reservoir built

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- OS — Open Space Preservation (no/limited access)
- R — Recreation
- Buffer Open Space
- CU-OS — Clean Up, Then Open Space
- CU-OS/R — Clean Up, Then Open Space or Recreation
- ET — Environmental Technology / Research
- C/O — Commercial / Office
- Interpretive Center or Study Area
- Trail Corridors
- Roads
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

North

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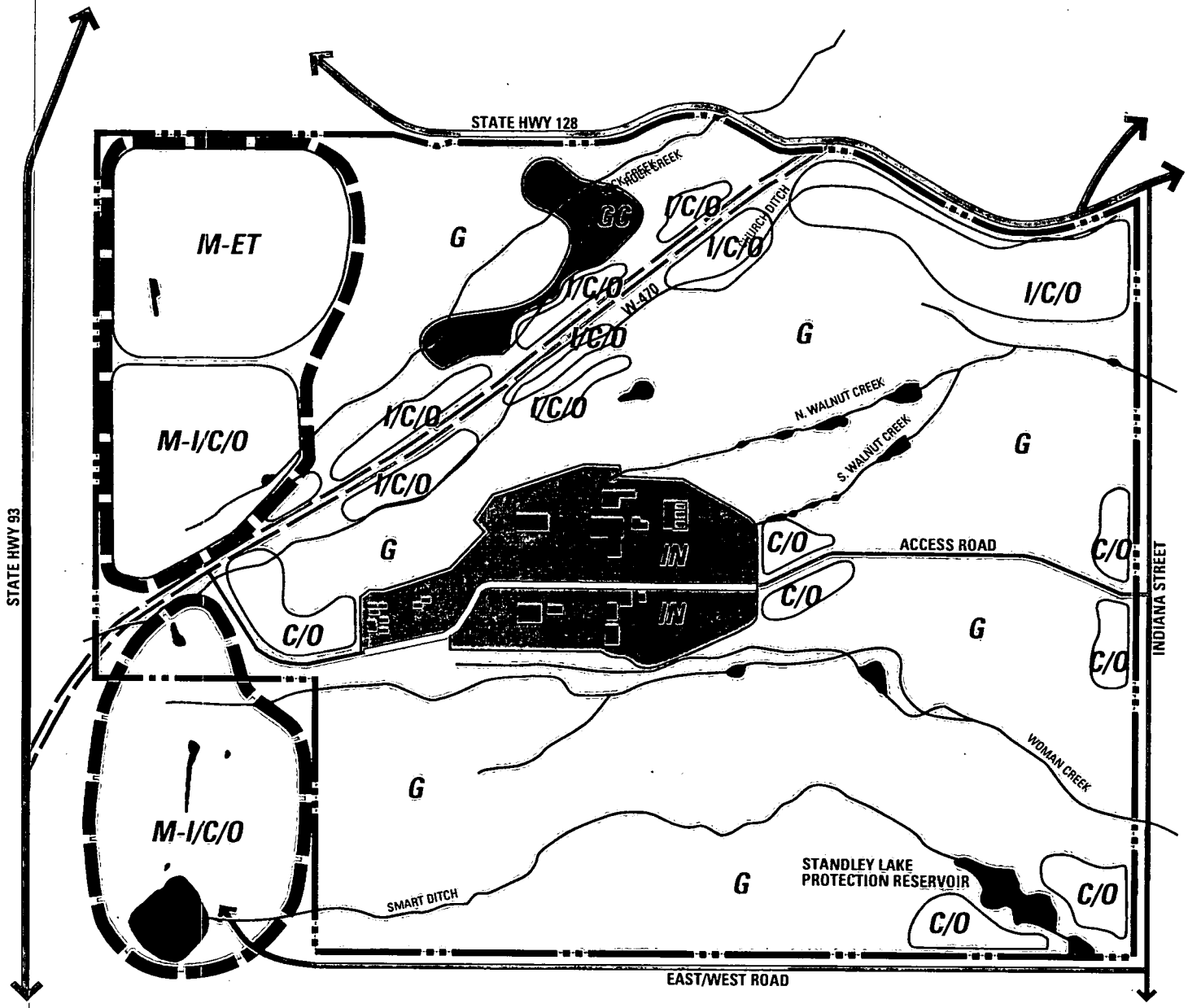

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **3** (December 8, 1994)

Grazing/Recreation and Industrial/Office Development (No Residential)

Concept:

- West 470 regional linkage built
- East / west highway built along south boundary
- West area mined / then industrial / commercial / office development
- Corners along Indiana developed as commercial / office and industrial / commercial / office
- Core industrial with commercial office expansion east & west
- Standley Lake protection reservoir built (same as Alternative 2)
- Remaining lands grazing & recreation (passive recreational use in highly sensitive areas)
- Possible golf course in Rock Creek

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- G — Grazing / Recreation
- GC — Golf Course
- M-ET — Environmental Technology / Research / Mining
- C/O — Commercial / Office
- I/C/O — Industrial / Commercial / Office
- M-I/C/O — Industrial / Commercial / Office / Mining
- IN — Industrial
- Sand & Gravel Mining
- Roads
- W470 Corridor
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

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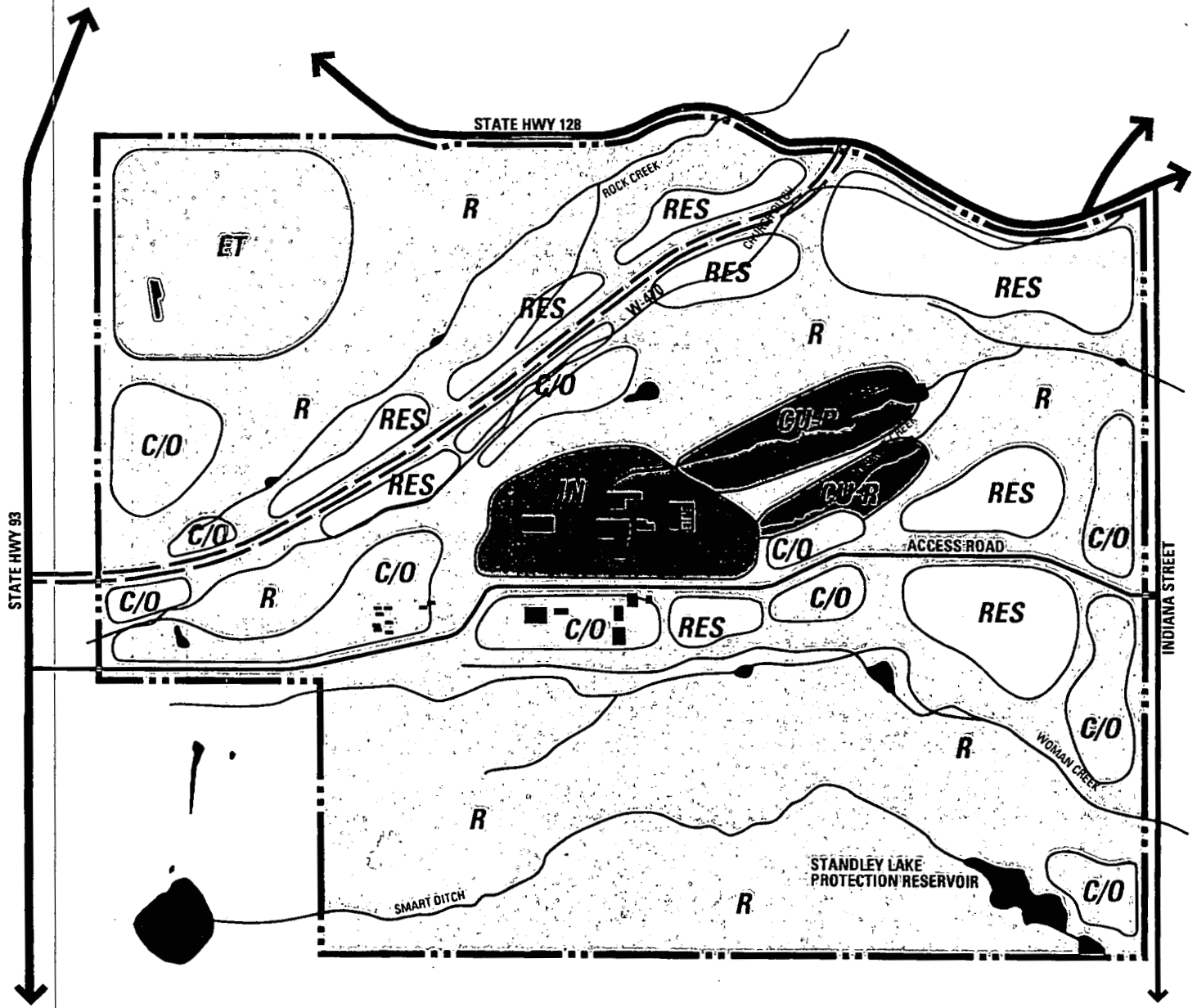

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **4** (December 8, 1994)

Intensive Clean Up / Residential and Mixed Use Residential

Concept:

- Major environmental model for clean up of worst polluted sites
- Clean up & build major residential & mixed use development along Rocky Flats Road
- Major residential development just east of plant and on NW ridge
- Core industrial / commercial / office / residential development
- Commercial / office along Highway 93 with wind / solar research retained
- Standley Lake protection reservoir built (same as Alt. 2)
- Remaining lands used as grazing / recreation

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- R Recreation
- CU-R Clean Up, Then Open Space or Recreation
- ET Environmental Technology / Research
- C/O Commercial / Office
- RES Residential
- IN Industrial
- Roads
- W470 Corridor
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection
Zone 3476

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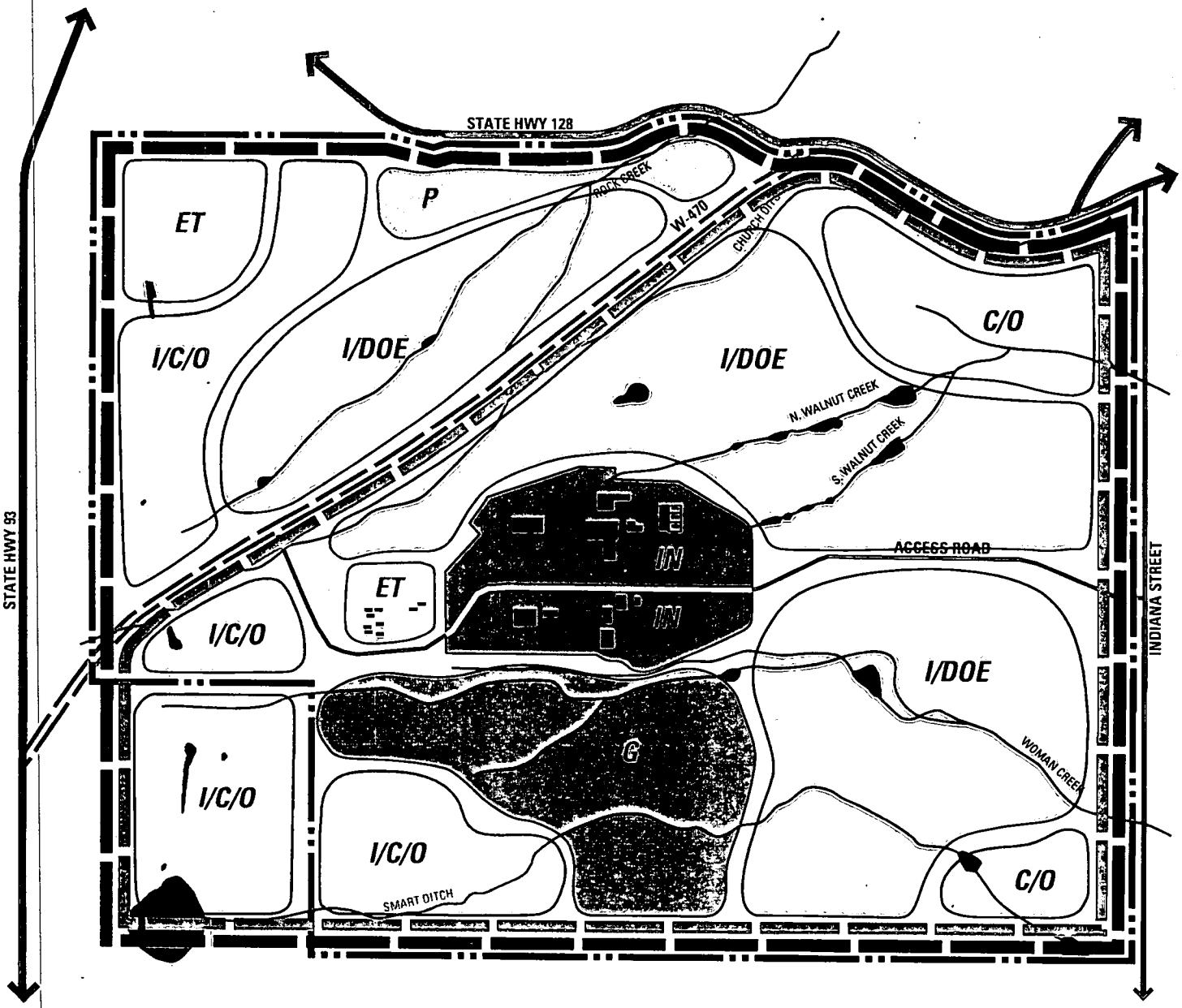

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE ***5*** (December 8, 1994)

Mining Then Industrial / Commercial / Office Development

Concept:

- Sand & gravel mining throughout most of site / especially west side
- Gas & oil exploration mostly south, west, and east of plant
- After mining:
  - NW expand environmental technology
  - Reclaim NW mining site as industrial / commercial / office & water storage; do the same on the SW corner of Rocky Flats site
  - Reuse noth & east lands for future DOE projects
  - Core use as heavy industry
  - NE & SE commercial / office
- South of plant preserve for passive recreation
- Graze lands until mined

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- G — Grazing / Recreation
- P — Public
- ET — Environmental Technology / Research / Mining
- C/O — Commercial / Office
- I/C/O — Industrial / Commercial / Office
- IN — Industrial
- Oil & Gas Exploration
- Sand & Gravel Mining
- Roads
- W470 Corridor
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection
Zone 3476

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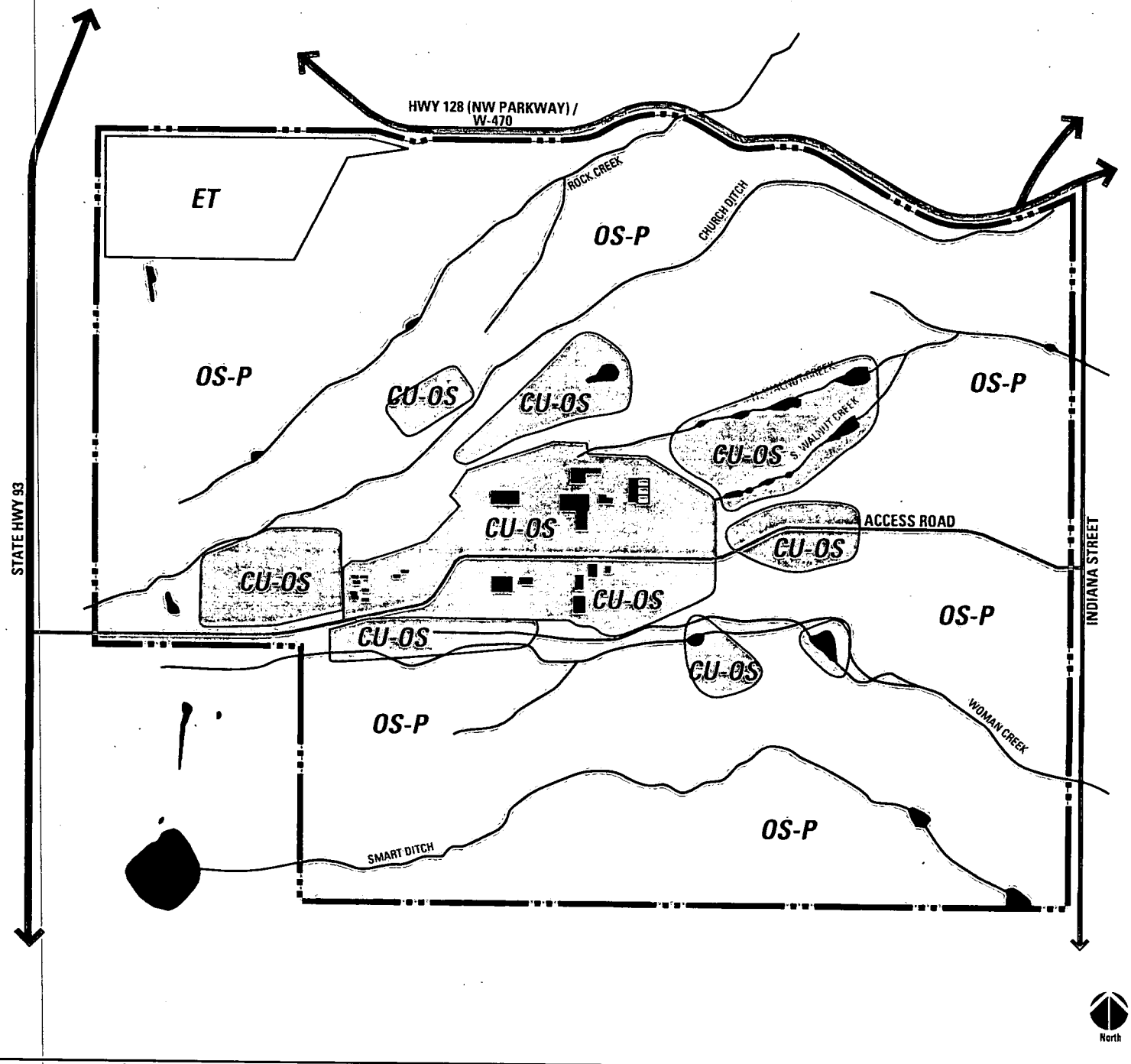

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **1** (January 12, 1995)

Open Space / Preservation

Concept:

- Highly contaminated areas, including core area cleaned up and rehabilitated as open space or preservation with no/limited access
- Entire undeveloped area designated as open space/preservation with no/limited access
- NW corner to remain as wind research

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

OS-P	Open Space Preservation (no/limited access)
CU-OS	Clean Up, Then Open Space
ET	Environmental Technology / Research
	Roads
	Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

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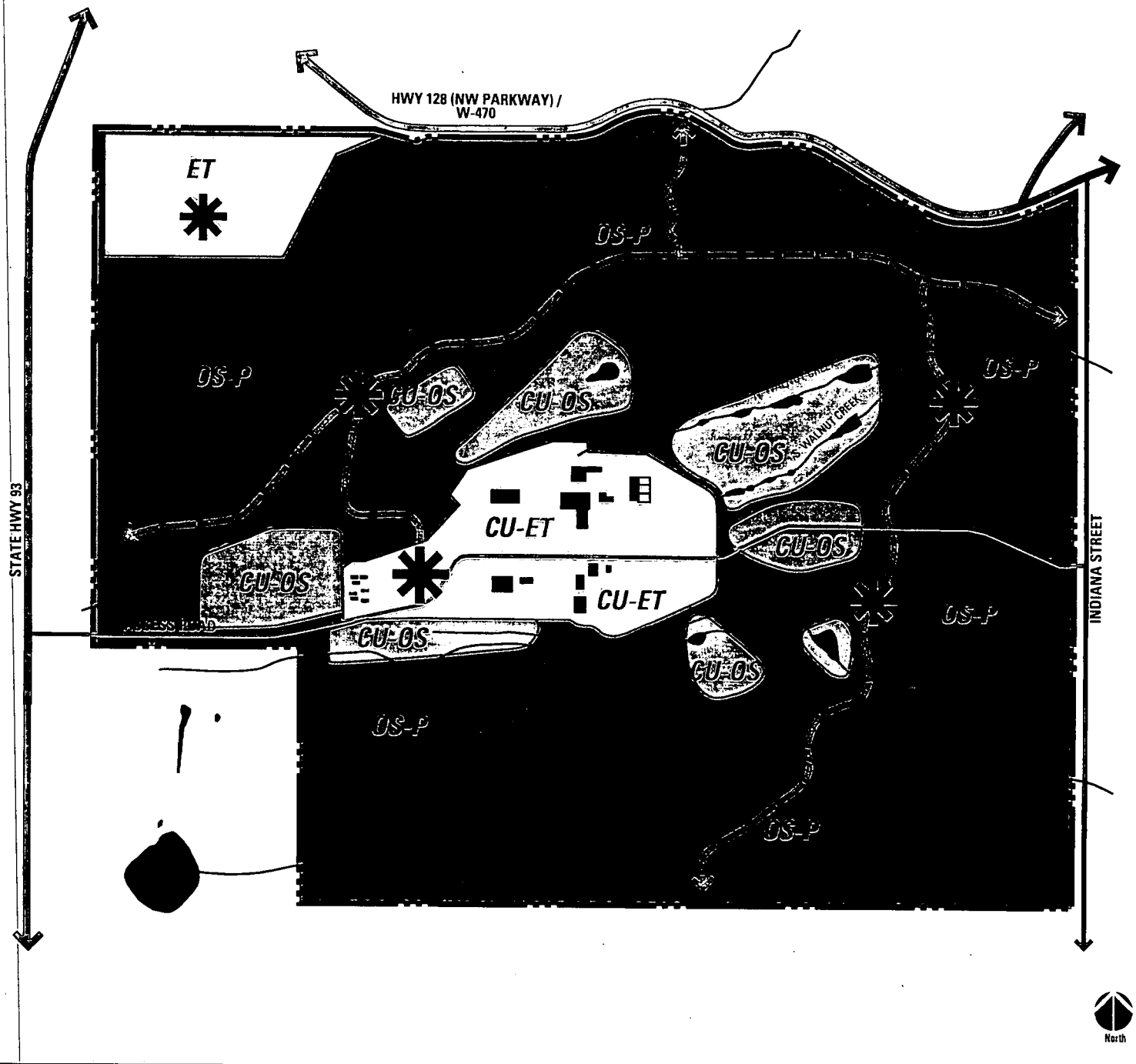

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **2** (January 12, 1995)

Environmental Technology / Interpretive Open Space

Concept:

- Entire site becomes nationally recognized as a preservation, environmental technology, and interpretive center reflecting the history of Rocky Flats and the site's unique ecological systems.
- Core area to be cleaned up and used for environmental technology and interpretation. Visitor center provided in core with interpretation of Rocky Flats (historically, now, future).
- Undeveloped areas preserved as open space with special interpretive sites which reflect unique natural and cultural resources. Visitor access managed so unique resources are preserved.
- Highly contaminated areas to be cleaned up and rehabilitated as open space with only limited access.
- NW corner to remain as wind research

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- OS-I — Open Space Interpretation (limited access)
- CU-OS — Clean Up, Then Open Space
- ET — Environmental Technology / Research
- CU-ET — Clean-up, Then Environmental Technology
- Interpretive Center or Study Area
- Trail Corridors
- Roads
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection
Zone 3476

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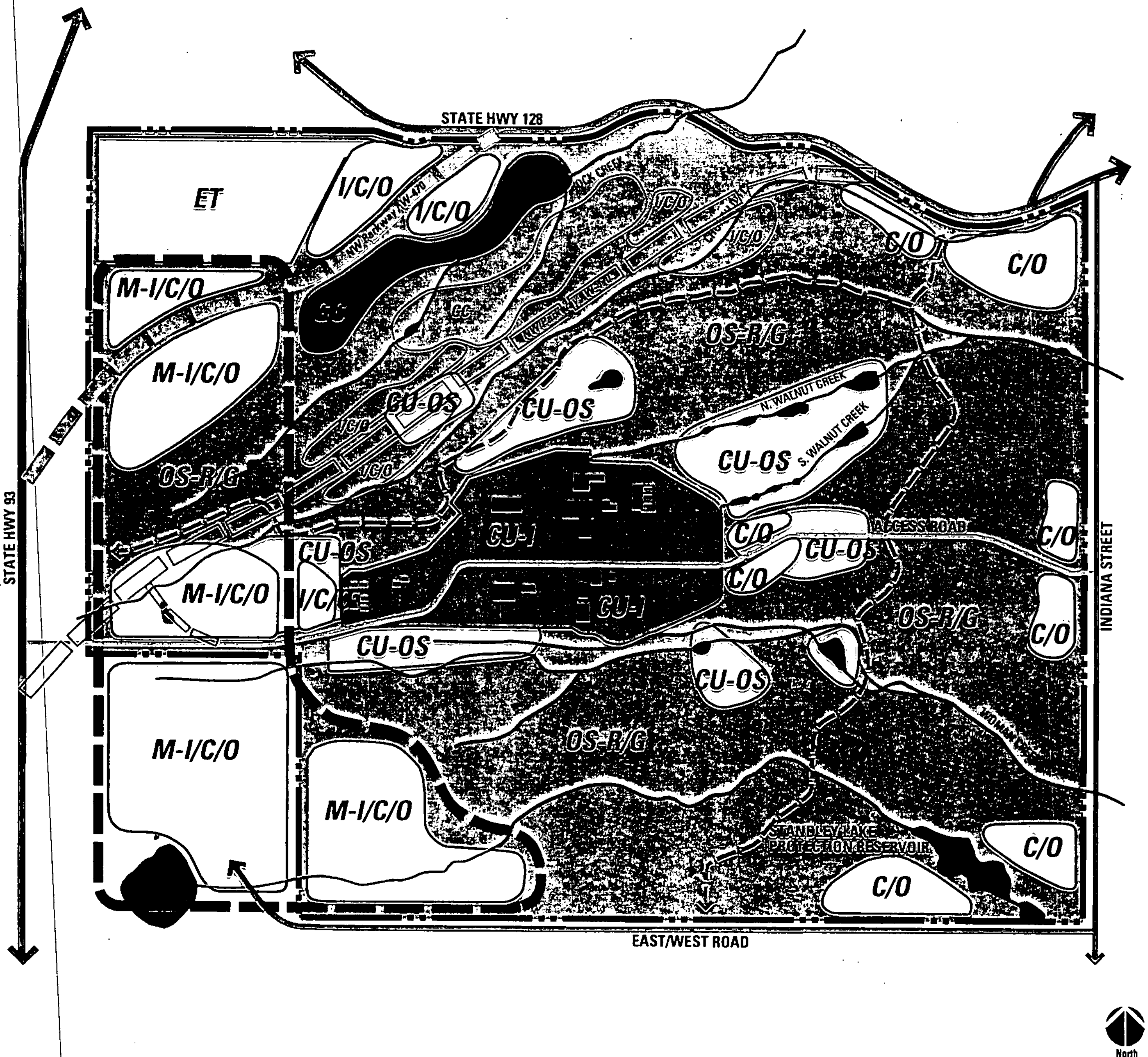

U.S. Department of Energy

Rocky Flats Plant

ALTERNATIVE **3** (January 20, 1995)

Mining / Commercial Development / Recreation and Grazing

Concept:

- Operational units cleaned up
- Sand and gravel mine west side then used for clean industrial/commercial/office
- Explore for gas and oil primarily south, west, and east of plant
- Construct W-470/NW Parkway through northwest area (Alt. 1 - along NW ridge, Alt. 2 - in NW corner)
- Cluster industrial/commercial/office and golf course adjacent to W-470/NW Parkway and in northeast corner
- Build Standley Lake protection reservoir and commercial/office in southeast corner
- Use west and east edges at core for commercial/ office
- Keep remainder of buffer zone as open space for passive recreation, grazing, and a trail linkage
- Clean-up core and use for clean industry
- Build an east/west road along south boundary
- Dashed lines indicate land uses (including mining and transportation corridor) which may be approved ONLY IF NOT PROHIBITED by presence of an Endangerd Species (Prebles Meadow Jumping Mouse) or classification as Conservation Site (Tall Prarie Grassland)

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- OS-R/G — Open Space - Recreation / Grazing
- CU-OS — Clean Up, Then Open Space
- ET — Environmental Technology / Research
- Clean Up, Then Industrial
- Golf Course
- C/O — Commercial / Office
- I/C/O — Commercial / Office / Industrial
- Sand and Gravel Mining
- Roads
- Trail Corridors
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

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PLANNING URBAN DESIGN LANDSCAPE ARCHITECTURE
1245 PEARL STREET SUITE 201 BOULDER COLORADO 80302
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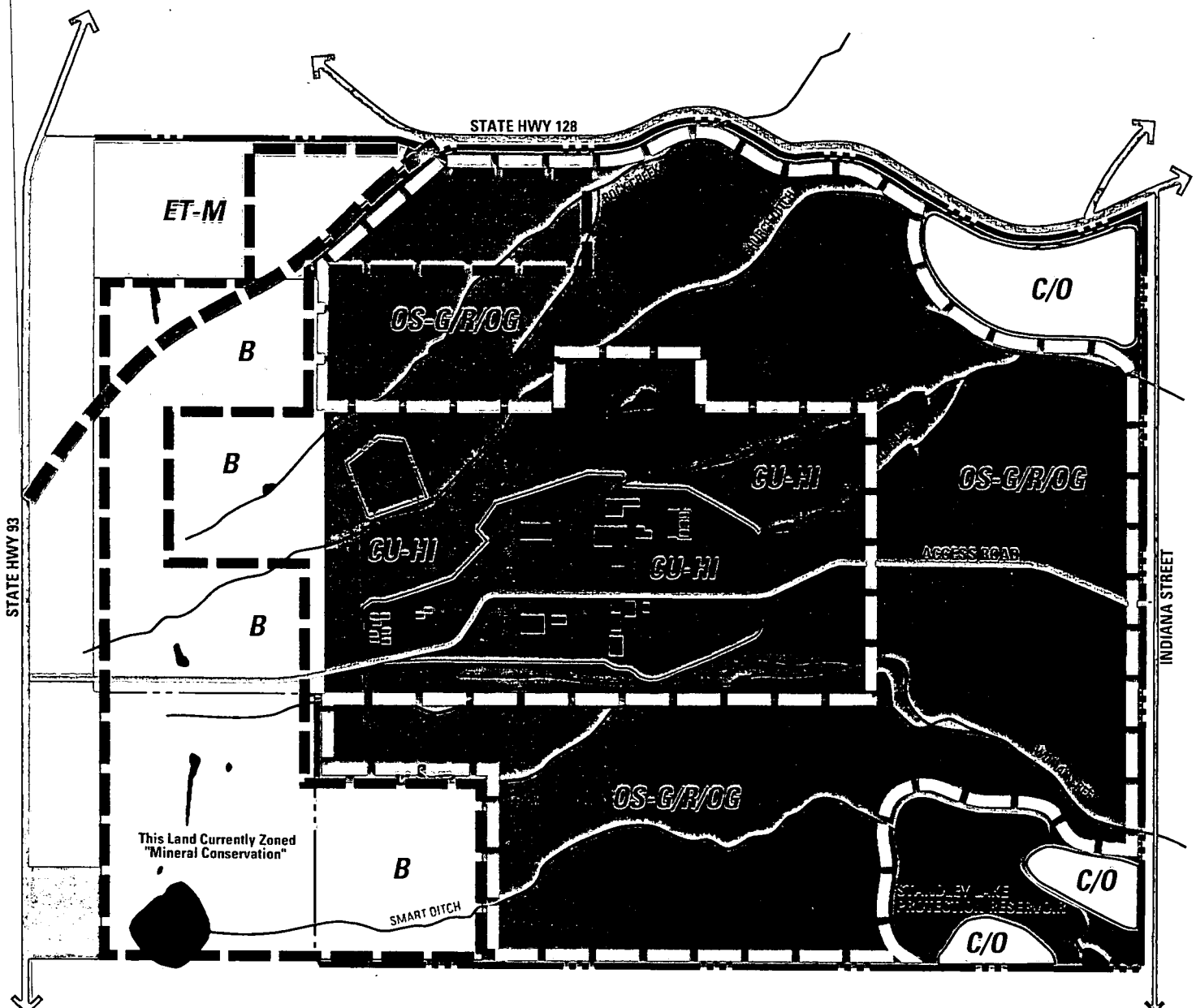

U.S. Department of Energy
Rocky Flats Plant

ALTERNATIVE **4** - February 9, 1995

Concept:

- Open space includes trail corridors, managed grazing, and oil and gas development
- Transportation corridors run through northwest corner and center of site
- Commercial/office pockets in northeast and southeast corners of site
- Buffer: surface mining permitted as interim use along with open space and water storage
- Environmental clean-up in and adjacent to core area with heavy industrial as future use plus potential future uses by DOE prospects
- Environmental research and development area in northwest (wind, photovoltaic, solar, etc.) - some interim mining with concurrent reclamation
- DOE water storage (as shown)
- Sand and gravel extraction (as shown)

NOTE: This land use alternative has been prepared for the Rocky Flats Future Site Use Working Group discussion purposes only. The nature, content, or extent of contamination at the Rocky Flats site has not yet been considered in the preparation of this alternative.

Legend:

- OS-G/R/OG — Open Space - Recreation / Grazing / Oil and Gas Development
- CU-HI — Clean Up, Then Heavy Industrial
- ET-M — Environmental Technology / Concurrent Mining
- C/O — Commercial / Office
- B — Buffer (Surface Mining, Open Space, Water Storage)
- Sand and Gravel Extraction
- Oil and Gas Mining
- Transportation Corridor
- Roads
- Boundary

DRAFT

1/2 Mile

State Plane Coordinate Projection Zone 3476

SHAPINS ASSOCIATES
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Environmental Interests
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Chet Tchozewski

Peace and Health Interests
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John Shepherd, Physicians for Social Responsibility, M.D.
David Wilson, Rocky Mountain Peace Center (1/95 - 6/95)

Rocky Flats Workers/Steel Workers Union
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Major Adjacent Landowners
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Richard Myers, Consultant Representative to Western Aggregates, Inc.

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Shelley Cook, Council Member
Joanne Conte, Council Member

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Tim Honey, City of Boulder, City Manager

Broomfield
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Jefferson County
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42/42